Mobile Digital Surveillance System Application

zito1500 Mobile DVR System

Hardware User's Manual

3rd Edition, 2007

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For more information, technical support and service about this zito1xxx mobile DVR series, please contact your supplier where you have purchased from.

This manual is for zito1500 mobile DVR series. (3rd Edition, 2007)

Announcement

This user's manual is only written for the zito mobile DVR hardware product with supporting Windows based operating system use. The appropriate models for this user's manual are in the following list.

- zito15xx
- zito15xxP

Limited Warranty

This product is warranted against manufacturing defects for the period of one year. The warranty period commences on the date of purchase from the authorized reseller/retailer. Your original purchase invoice, showing the date of purchase of the product is your proof of the date of purchase.

During the warranty period, defective parts will be repaired or replaced. There will be no charge for labor or parts during the one-year warranty period from the date of purchase. Any shipping or other cost such as customs incurred costs, etc… which is at customers' responsibility.

This warranty does not cover any failure resulting in loss to software, data, lost profits, lost savings, any incidental damages or other economic consequential damages due to accident, abuse, misuse, negligence and acts of God.

Safety Notice

We make no warranties with respect to this documentation and disclaim any implied warranties of merchantability and fitness for a particular purpose.

We shall not be liable for any error or for incidental or consequential damages in connection with the furnishing, performance, or use of this documentation or the examples herein. The information in this documentation is subject to change without notice.

1. This equipment should not be exposed to water or other liquids.

2. Do not cover the openings; the openings on the equipment are for air convection hence protects the equipment from overheating.

3. Do not attempt to remove the cover of this equipment.

4. If any of the following situations arises, have the equipment checked by an authorized service personnel:

   The USB connector is damaged.
   The power cord or connector is damaged.
   Liquid has penetrated into the equipment.
   The equipment has obvious sign of breakage.

Packing List

Before you begin installing your unit, please make sure that the following materials have been shipped:

- 1 x zito1500 series mobile Digital Video Platform
- 1 x Utility CD (User's Manual & Drivers)
- 1 x Cable set (3 pieces)

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Additional Information

Contact your distributor, sales representative, or customer service center for technical support if you need additional assistance.

Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (eg. operating system, version, and application software,… etc.)
- A complete description of the problem
- The exact wording of any error messages

FCC (Class B)

This device complies with the requirements in part 15 of the FCC rules: Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation

This equipment has been tested to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this device in a residential area is not likely to cause harmful interference. The user is advised that any equipment changes or modifications not expressly approved by the party responsible for compliance would void the compliance to FCC regulations and therefore, the user's authority to operate the equipment.

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions

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Chapter 1 Introduction

1.1 Introduction

The zito1500 mobile digital video recorder series provides the best mobile DVR solution in today's DVR market. It is the smallest in vehicle x86 open platform supporting up to 8 channels video inputs for various transportations in the current market. The zito is specially designed with fan less solution to meet harsh environment such as sustaining extreme shock and vibration. By introducing some key features, such as using multilock connector, removable HDD, and having embedded Wi-Fi wireless networking interface for easy and convenience usage. zito series are the best solution in embedded and mobile application for current and future market.

1.2 Key Features

1.2.1 Vehicle Use

- 12/24 VDC power ready
- Durability in harsh environment

1.2.2 DVR System

- Up to 8 channels of video input
- Up to 120fps maximum

1.2.3 MultiLock System

- Secure and reliable connector for transportation standard
- Hassle free cable management

1.2.4 Removable HDD(optional device)

- Quick accessibility
- Easy maintenance

1.2.5 Wireless Network(optional device)

- MiniPCI WLAN card on board.
- PCMCIA socket ready
- Information communicating and update

1.2.6 Power Management

- Smart power management for car ACC control
- Smart power management Operating System protect preventing system unexpected shutdown
- Battery health and performance monitoring
- Automatically power on/off with delay function

1.2.7 General Propose of Input and Output

- Trigger alarm device setting
- Event setting

1.2.8 Support External GPS System (optional device)

- Application for real time vehicle tracking
- Informative announcement

1.3 Hardware Specification

1.3.1 Video Capture System

- 4 video inputs for zito1504 series
- 8 video inputs for zito1508 series
- 4 audio inputs
- Composite for NTSC/PAL video standard
- Up to VGA solution at 640(H) x 480(V)
- Maximum capture frame rate at 120/100 (NTSC/PAL)
- RGB connector for video data output

1.3.2 Processor System

- Supporting from Intel ULV Celeron M 800Mhz up to Pentium M 1.4Ghz with low voltage
- Intel 852GM Chipset
- L2 cache ranges from 0 up to 2MB
- Award flash BIOS

1.3.3 Memory

- One 200pin SO-DIMM socket
- Supporting DDR 200/226
- Built in 256MB RAM with up to 1GB.

1.3.4 Graphic

- Chipset integrated VGA controller
- Shared system memory up to 64MB
- Up to 1600 x 1200 @ 85Hz

1.3.5 Ethernet

- Intel® 82562GZ chipset
- Rate speed at 10/100MBps
- IEEE 802.3u (100 Base-T) protocol compatible
- Supporting 802.11 b/g WLAN (zito15xxP series only)

1.3.6 Storage

- Supporting 2,5” HDD with removable function
- Build in type II Compact Flash socket

1.3.7 I/O Connector

- 1 x PCMCIA socket (zito15xxP series only)
- 1 x WLAN internal (zito15xxP series only)
- MultiLock Connectors
  .1 x VGA (D-Sub)
  .3 x USB port (USB2.0)
  .1 x LAN port (RJ-45)
  .1 x Serial port (RS-232)
  .1 x Audio in
  .1 x Audio out
  .1 x Microphone in
  .4 x GPIO

1.3.8 Environment

- Relative humidity is in between 10% ~ 95% at 40℃ with non-condensing
- Operating temperature is in between 0 ~ 45℃ in fan less
- Shock is at 20G for operating, 80G for storage and transit
- Vibration is at 1.0G with in between 5 ~ 500Hz

1.3.9 Power

- 12 VDC @ 2A and 24 VDC @ 1A
- Maximum power consumption is at 24W

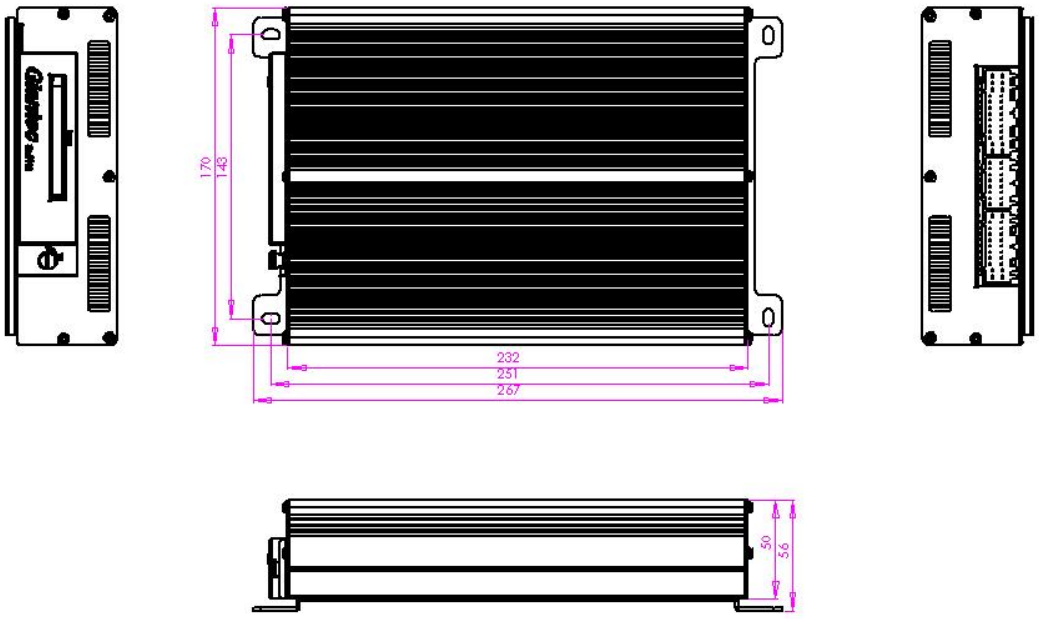
1.3.10 Certification

- CE
- FCC with class B

1.3.11 Mechanical

- Construction is aluminum housing
- Dimension is at 170mm (W) x 50 (H) x 230 (L) / 6.69” x 1.97” x 9.06”
- Net weight is at 2.8kg
- Packaging dimension is at 40cm x 30 x 22
- Packaging weight is at 3.5kg (net) / 4.5kg (gross)

1.4 Dimension Diagram



Chapter 2 Hardware Functional Specification

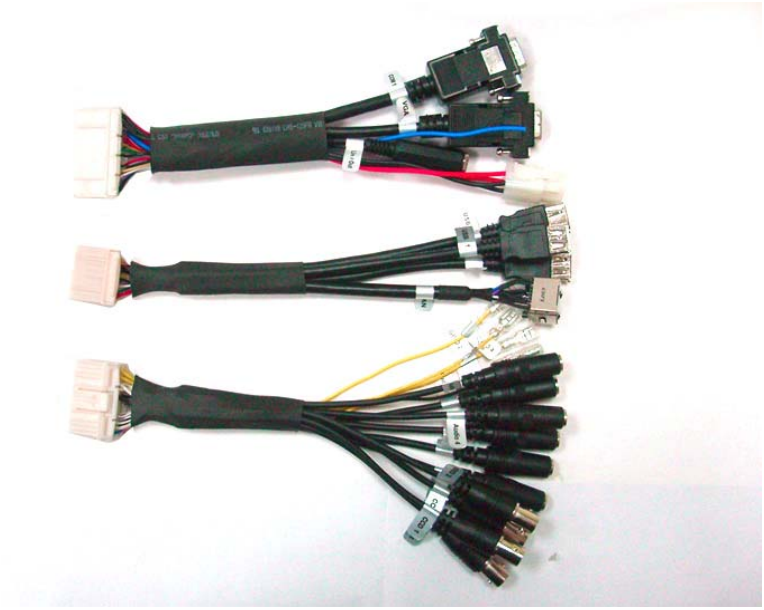
2.1 zito1500 series hardware outlook

2.1.1 Front View

2.1.2 Back View

2.2 External I/O Connectors

2.2.1 zito1504 series

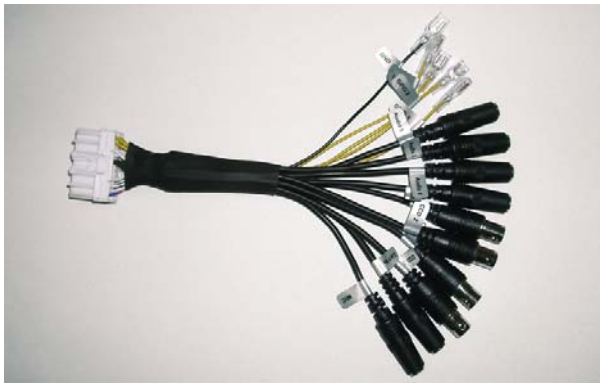


2.2.2 zito1508 series

2.3 Connectors Description

The zito1500 series external I/O connectors' link to various external devices for instance a CRT monitor, security cameras or USB drives. Those connectors come with a cable set which is aiming for evaluation only. For the best performance and installing, please use the **MultiLock connector** for both ends. The following sections list out each of the external I/O connectors with detail function.

2.3.1 Connector A



zito1504

zito1508

2.3.1.1 Video Input

The zito1504 series come with 4 video inputs where the zito1508 series have got 8 video inputs for connecting surveillance cameras.

2.3.1.2 GPIO (General Propose of Input and Output)

A standard 4 GPIO connectors are ready for trigger alarm device or event settings. The zito15xx and zito15xxP series do not support this function.

2.3.1.3 Audio Input

Depends on the DVR software, zito1500 series allow users to record up to 4 channels of audio from audio enabled security cameras or external microphone devices.

2.3.1.4 Line Input

This is part of hardware specification for Realtek AC'97 audio line in.

2.3.1.5 Microphone Input

This is part of hardware specification for Realtek AC'97 audio microphone in.

2.3.1.6 Ground Connector

The connector is for connecting ground.

2.3.2 Connector B

2.3.2.1 USB Ports

The zito1500 series provide 3 x external USB port for connecting other USB devices, which gives completed Plug & Play and hot swapping for up to 127 external devices. The USB port interface complies with USB2.0 compliant.

2.3.2.2 Ethernet Connector (LAN Port)

The zito1500 series are equipped with Intel® 82562GZ fast Ethernet controller that is fully compliant with IEEE 802.3u 10/100Base-T CSMA/CD standards. The Ethernet port provides a standard RJ-45 jack connector with LED indicators on the front side to show its Active/Link status (Green LED) and Speed status (white LED).

2.3.3 Connector C

2.3.3.1 Power Input

The power input connector carries out from 9~30 VDC external power input.

2.3.3.2 COM Port

The zito1500 series provide a D-Sub type connector (9 Pin), which offers a standard RS-232 serial communication interface in port of COM1.

2.3.3.3 VGA Port

It provides a high resolution VGA interface with a D-sub 15-pin connector to support a VGA CRT monitor and supports VGA up to 1600 x 1200 @ 85Hz resolution and up to 64MB shared memory.

2.3.3.4 Line Output

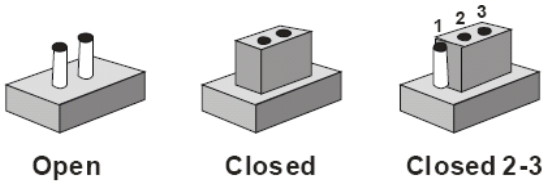
This is part of hardware specification for Realtek AC'97 audio line out.

2.3.3.5 ACC Cable (Blue Wire)

The ACC Cable is acting like an On/OFF switch for our zito unit. During the field installation that you would require this ACC cable to be connected to the key's ignition switch.

2.4 Setting Jumpers

Setting jumpers allows you to configure your card to match the needs of your application. A jumper is a metal bridge for closing an electric circuit. It consists of two metal pins, as well as a small metal clip that slides over the pins to connect them.
To “close” a jumper, you connect the pins with the clip.
To “open” a jumper, you remove the clip.
Sometimes a jumper will have three pins, labeled 1, 2 and 3.
In this case you would connect either pins 1 and 2, or 2 and 3.



A pair of needle-nose pliers would be a great helping tool when setting with jumpers. If you have any suspicions about the best hardware configuration for your application, please contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

2.4.1 Clearing CMOS

To stay away from damaging the computer, TURN OFF the power supply before setting “Clear CMOS.” Before turning on the power supply, set the jumper back to “NO, Normal Open.”

This jumper is used to erase CMOS data and reset system BIOS information. The procedure for clearing CMOS is:

1. Turn off the system.
2. Set up clear CMOS Jumper and wait for 4 second. Then remove jumper back to Normal.
3. Turn on the system. The BIOS is now reset to its default setting.

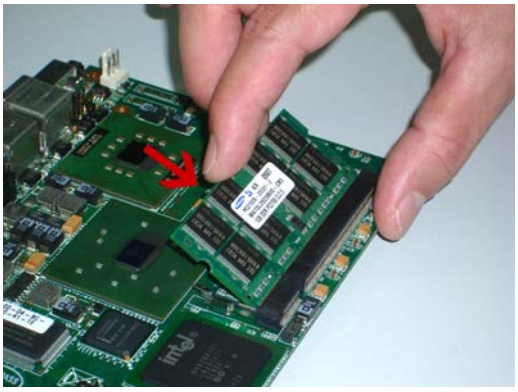
Table 2.4: CMOS Clear (RTC_RST)	
Condition	**Result**
NO	Normal
1-2	Clear CMOS

2.5 Installing SO-DIMM RAM

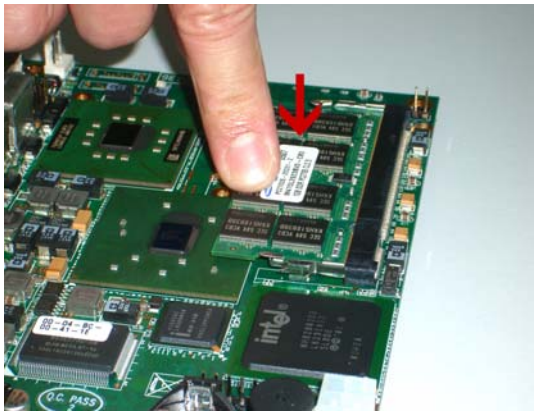
The procedure for installing a SO-DIMM RAM is illustrated in below. Please follow these steps carefully and you can install SDRAM memory modules using 200-pin SO-DIMM (Small Outline Dual In-line Memory Modules) RAM.

1. Ensure to switch off all power supplies for the system.

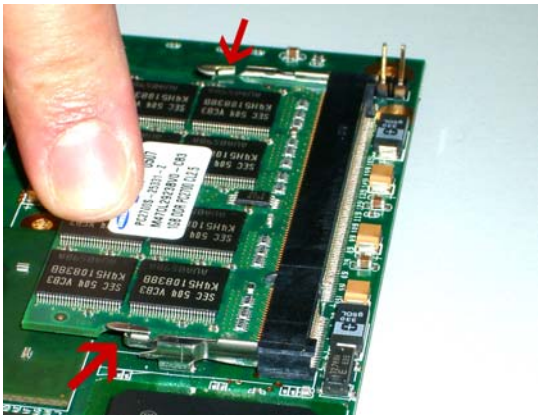
2. To incline the SO-DIMM card approximately 25^{o} above the board, and move it in the direction of the housing card slot. Make sure the pin in the module and the pin in the housing are aligned.



3. Push the module into the socket until the module bottoms.



4. There should be a small insertion force to place the module into the contacts.



2.6 IDE Hard Drive Connector

The unit provides one IDE channel which allows you to attach to the board's internal controller with one Enhanced Integrated Device Electronics hard disk drives. This advanced IDE controller supports faster data transfer, PIO mode 3, mode 4 and up to UDMA/66.

2.6.1 Connecting Hard Drive

The package includes one 44PIN IDE connector that can connect to a 2.5" hard disk driver.

Step1 Unscrew the locking key by hand or using a screw driver, then push the cover left side to open the cover case.

Step2 Turning the cover case upside down as a tool to slide out the HDD tray.

Step3 Do **MAKE SURE** the HDD pin connector is attaching correctly with the 2.5” HDD.

Correct

Wrong

The pin connector’s edge **MUST NOT** cross over the HDD.

Step4 Sliding the HDD into HDD tray with label is facing up and also using the provided 4 screws to assemble together.

Step5 Placing the HDD tray back into zito unit and close the cover with locking key to complete this installation.

2.7 Solid State Disk

The unit offers a Compact Flash™ card type II socket.

2.7.1 Compact Flash

The Compact Flash card shares a secondary IDE channel which can be enabled or disabled through the BIOS settings.

2.8 Audio Interface

2.8.1 Audio Connector

The zito1500 series provide all major audio signals and it can be optional with Line-in/Line-out/Speaker-out function.

2.9 COM Port Connector

The zito1500 series provide 1 serial port (COM1: RS-232) in DB-9 connector. It provides connections for other serial devices. You can find the pin assignments for the COM port connector in Appendix A.

2.10 VGA Interface Connections

The zito1500 series' VGA interface can drive a conventional CRT display. It has one connector to support display which is for standard CRT VGA monitors. You can find the pin assignments for the VGA port connector in Appendix A

2.10.1 CRT Display Connector

The CRT display connector is a 15-pin D-SUB connector used for standard CRT displays.

2.11 Ethernet Configuration

The unit is equipped with a high performance Ethernet interface which is fully compliant with IEEE 802.3U 10/100Mbps standards. This is supported by all major network operating systems.

2.11.1 100Base-T Connector

100Base-T connections are made through the on-board RJ-45 connector

2.12 USB Connectors

The unit provides 3 x USB (Universal Serial Bus) ports. This gives a complete Plug and Play, and hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification Rev. 2.0 which supports 480Mbps transfer rate, and are fuse protected. The adapter cable has a 4 x 2-pin connector on one end and a USB connector on the other. The USB interfaces can be disabling from the system BIOS setup.

Chapter 3 Award BIOS Setup

3.1 Introduction

Award's BIOS ROM allows users to modify the basic system configuration with a built-in setup program. The information is stored in a battery-backed memory (also known as CMOS RAM) which retains the setup information even when the power is switched off.

3.1.1 COMS RAM Auto-backup and Restore

The CMOS RAM is powered by an onboard button cell battery. The data in CMOS RAM will be automatically backed up to Flash ROM when you finished BIOS setup. BIOS will recheck the data in CMOS RAM and automatically restore the original data in Flash ROM to CMOS RAM for booting if operating in harsh industrial environment causes a soft error.

If you intend to change the CMOS setting without restoring the previous backup, you MUST click on "DEL" within two seconds of the "COMS checksum error…" display screen message appearing. Then enter the "Setup" screen to modify the data. If the "COMS checksum error…" message keeps repeating, please check to see if you might need to replace the battery in your system.

3.2 Entering Setup

The BIOS setup program can be accessed by pressing the <**DEL**> key during POST.

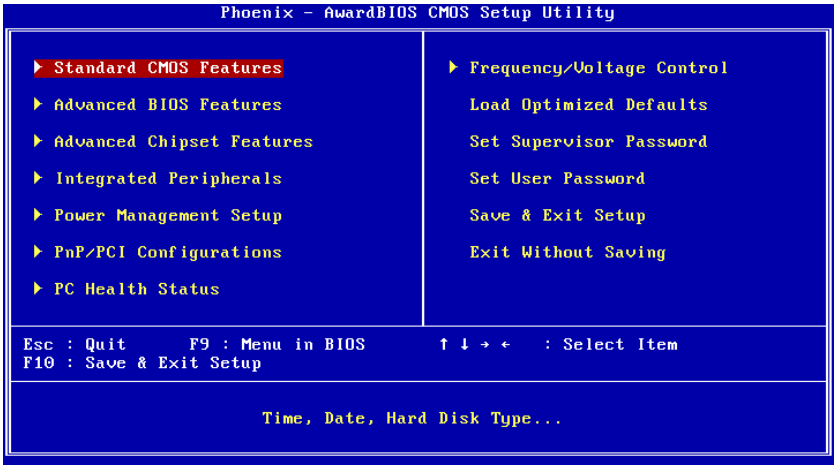


Figure 3.1: Award BIOS Initial Setup Screen

3.3 Standard CMOS Setup

Choose the “Standard CMOS Features” option from the BIOS Initial Setup Screen, and the screen below will be displayed. This menu allows users to configure system components such as date, time, hard disk drive, display, and memory.

Press “**ESC**” to allow you to return back to BIOS Initial Setup Screen.

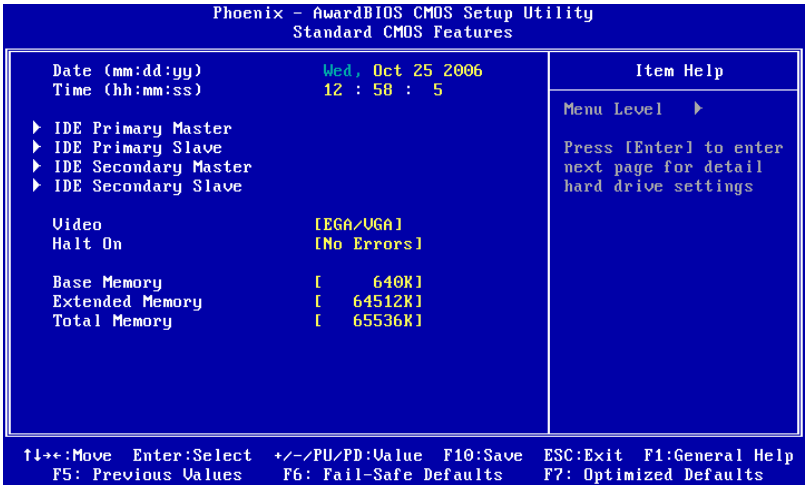

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Wed, Oct 25 2006
Time (hh:mm:ss) 12 : 58 : 5
IDE Primary Master
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave
Video [EGA/VGA]
Halt On [No Errors]
Base Memory [640K]
Extended Memory [64512K]
Total Memory [65536K]
Item Help
Menu Level
Press [Enter] to enter next page for detail hard drive settings
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.2: Standard CMOS features screen

3.4 Advanced BIOS Features

The “Advanced BIOS Features” screen appears when choosing the “Advanced BIOS Features” option from the “Initial Setup Screen” menu. Below are some major items that provided in the Advance BIOS Features screen. A quick booting function is provided for your convenience by simply enable the Quick Booting item to save time.

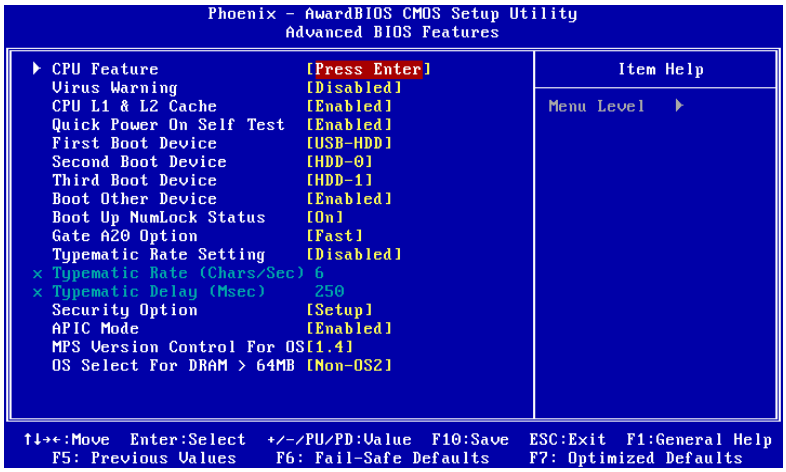

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
CPU Feature [Press Enter]
Virus Warning [Disabled]
CPU L1 & L2 Cache [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [USB-HDD]
Second Boot Device [HDD-0]
Third Boot Device [HDD-1]
Boot Other Device [Enabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
APIC Mode [Enabled]
MPS Version Control For OS [1.4]
OS Select For DRAM > 64MB [Non-OS2]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.3: Advanced BIOS features screen

3.4.1 Virus Warning

If enable, a warning message and alarm beep activates if someone attempts to write here. The commands are “Enabled” or “Disabled”.

3.4.2 L1 & L2 Cache

Enabling this feature speeds up memory access. The commands are “Enabled” or “Disabled.”

3.4.3 Quick Power On Self Test

This option speeds up the Power On Self Test (POST) conducted as soon as the computer is turned on. When enabled, BIOS shortens or skips some of the items during the test. When disabled, the computer conducts normal POST procedures.

3.4.4 First/Second/Third/Other Boot Device

The BIOS tries to load the OS with the devices in the sequence selected. Choices are: LS/ZIP, HDD, CDROM, and Disabled.

3.4.5 Boot Up NumLock Status

This feature selects the “power on” state for NumLock. The commands are “On” or “Off”.

3.4.6 Gate A20 Option

Normal: A pin in keyboard controller controls GateA20
Fast (Default): Chipset controls GateA20.

3.4.7 Typematic Rate Setting

The typematic rate is the rate key strokes repeat as determined by the keyboard controller. The commands are “Enabled” or “Disabled”. Enabling allows the typematic rate and delay to be selected.

3.4.8 Typematic Rate (Chars/Sec)

BIO accepts the following input values (characters/second) for typematic rate: 6, 8, 10, 12, 15, 20, 24, 30.

3.4.9 Typematic Delay (msec)

Typematic delay is the time interval between the appearances of two consecutive characters, when holding down a key.
The input values for this category are: 250, 500, 750, 1000 (msec).

3.4.10 Security Option

This setting determines whether the system will boot up if the password is denied. Access to Setup is always limited.

System The system will not boot, and access to Setup will be denied if the correct password is not entered at the prompt.

Setup The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

If you want to disable security option from the main menu, select the “PASSWORD SETTING”. At this point, you will be asked to enter a password. Simply press <Enter> to disable security. When security is disabled, the system will boot, and you can enter Setup freely.

3.4.11 APIC Mode

The APIC mode stands for Advanced Programmable Interrupt Controller.
The default setting is enabled.

3.4.12 MPS Version Control For OS

This option specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability.

The default setting is 1.4.

3.4.13 OS Select For DRAM > 64MB

This setting allows selecting an OS with greater than 64MB of RAM. Commands are “Non-OS2” or “OS2.”

3.5 Advanced Chipset Features

The “Advanced Chipset Features” screen appears when choosing the “Advanced Chipset Features” option from the “Initial Setup Screen” menu. It allows the user to configure the system chipset according to his particular requirements. Below are some major items that are provided in the Advanced Chipset Features screen.

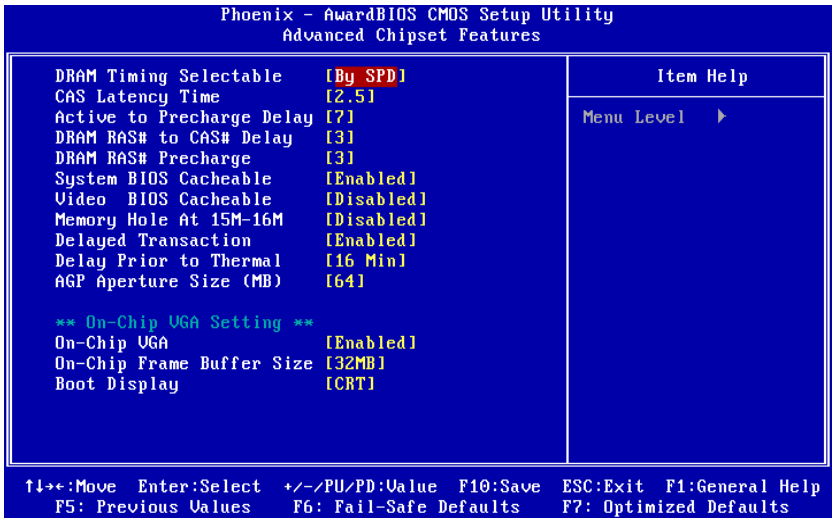

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
DRAM Timing Selectable [By SPD]
CAS Latency Time [2.5]
Active to Precharge Delay [7]
DRAM RAS# to CAS# Delay [3]
DRAM RAS# Precharge [3]
System BIOS Cacheable [Enabled]
Video BIOS Cacheable [Disabled]
Memory Hole At 15M-16M [Disabled]
Delayed Transaction [Enabled]
Delay Prior to Thermal [16 Min]
AGP Aperture Size (MB) [64]
** On-Chip VGA Setting **
On-Chip VGA [Enabled]
On-Chip Frame Buffer Size [32MB]
Boot Display [CRT]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.4: Advanced Chipset Features

3.5.1 DRAM Timing Selectable

This option refers to the method by which the DRAM timing is selected. The default is By SPD.

3.5.2 CAS Latency Time

You can configure CAS latency time in HCLKs as 2 or 2.5 or 3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

3.5.3 Active to Precharge Delay

The default setting for the Active to Precharge Delay is 7.

3.5.4 DRAM RAS# to CAS# Delay

This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Reducing the delay improves the performance of the SDRAM.

3.5.5 DRAM RAS# Precharge

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes.

The default setting for the Active to Precharge Delay is 3.

3.5.6 System BIOS Cacheable

The setting of Enabled allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

3.5.7 Video BIOS Cacheable

The Setting Enabled allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

3.5.8 Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are Enabled and Disabled.

3.5.9 Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

3.5.10 Delay Prior to Thermal

This field activates the CPU thermal function after the systems boots for the set number of minutes. The options are 16Min and 64Min.

3.5.11 AGP Aperture Size (MB)

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is 64M.

3.5.12 On-Chip VGA

The default setting is enabled.

3.5.13 On-Chip Frame Buffer Size

The default setting is 32MB. The options available include 1MB, 4MB, 8MB and 16MB.

3.5.14 Boot Display

The default setting is CRT. The options available include CRT, LVDS, DVI and TV.

3.6 Integrated Peripherals

This section sets configurations for your hard disk and on board devices.

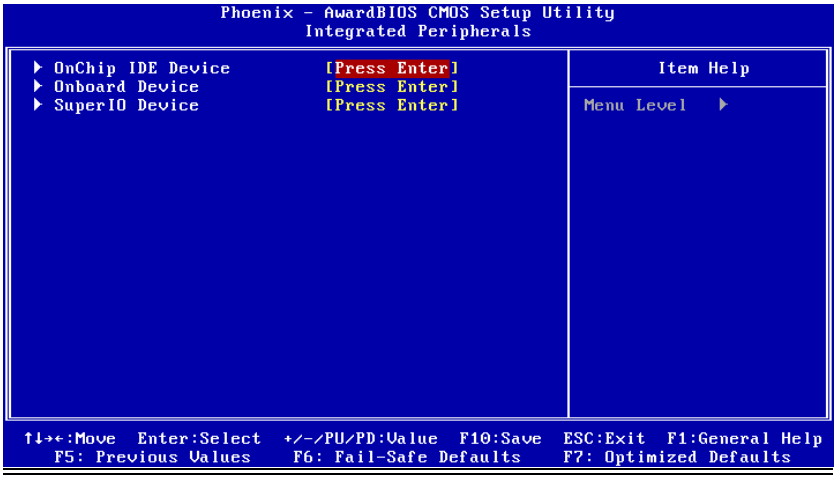

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
OnChip IDE Device [Press Enter]
Onboard Device [Press Enter]
SuperIO Device [Press Enter]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.5: On board Integrated Peripherals

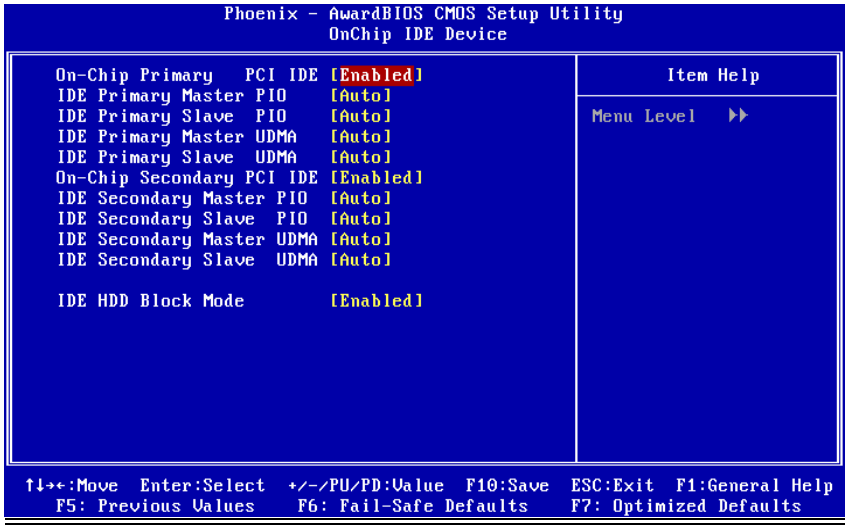

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device
On-Chip Primary PCI IDE [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Primary Master UDMA [Auto]
IDE Primary Slave UDMA [Auto]
On-Chip Secondary PCI IDE [Enabled]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Secondary Master UDMA [Auto]
IDE Secondary Slave UDMA [Auto]
IDE HDD Block Mode [Enabled]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.6: On Chip IDE Device

3.6.1 IDE Master/Slave PIO/UDMA Mode

IDE Primary (Secondary) Master/Slave PIO/UDMA Mode (Auto)
Because each IDE device may have a different Mode timing (0, 1, 2, 3, 4), it is necessary for these to be independent. The default setting “Auto” will allow auto detection to ensure optimal performance.

3.6.2 IDE HDD Block Mode

If you enable IDE HDD Block Mode, the enhanced IDE driver will be enabled. Leave IDE HDD Block Mode on the default setting.

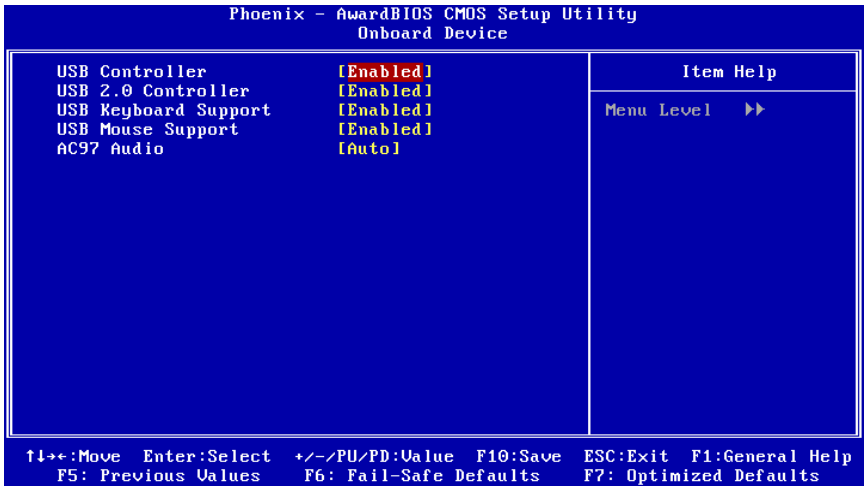

Phoenix - AwardBIOS CMOS Setup Utility
Onboard Device
USB Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Keyboard Support [Enabled]
USB Mouse Support [Enabled]
AC97 Audio [Auto]
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.7: On board Device

3.6.3 USB Controller

Select enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.
The choices: Enabled, Disabled.

3.6.4 USB Keyboard/Mouse Support

Select enabled if user plan to use an USB keyboard and Mouse.
The choice: Enabled, Disable.

3.6.5 AC97 Audio

Select disable if you do not want to use AC-97 audio.
Option is Auto, Disable.

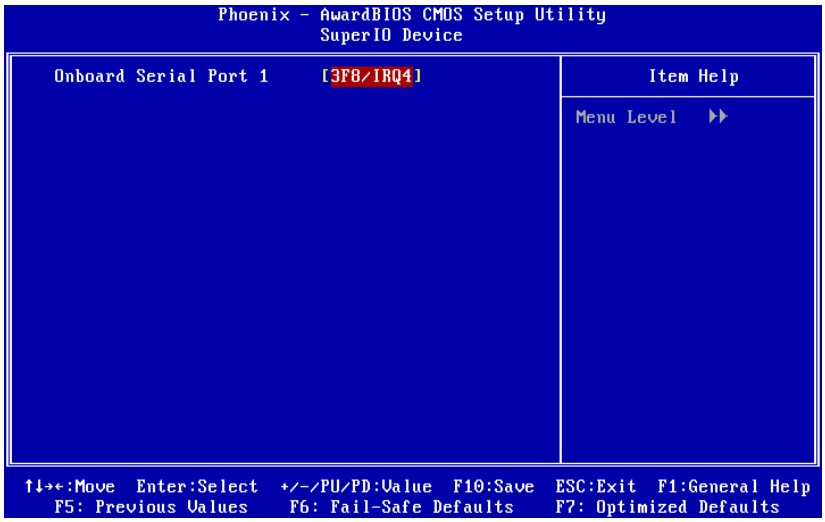

Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device
Onboard Serial Port 1
[3F8/IRQ4]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.8: Super IO Device

3.6.6 Onboard Serial Port 1

For settings reference the Appendix for the serial resource allocation, and Disabled for the on-board serial connector

3.7 Power Management Setup

The power management setup controls the CPU card's "green" features to save power. The following screen shows the manufacturer's defaults:

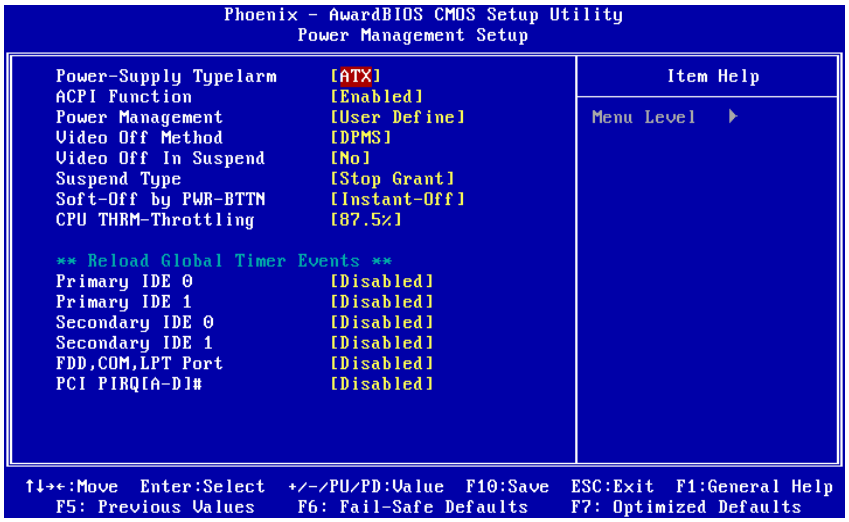

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
Power-Supply Typelarm [ATX]
ACPI Function [Enabled]
Power Management [User Define]
Video Off Method [DPMS]
Video Off In Suspend [No]
Suspend Type [Stop Grant]
Soft-Off by PWR-BTTN [Instant-Off]
CPU THRM-Throttling [87.5%]
** Reload Global Timer Events **
Primary IDE 0 [Disabled]
Primary IDE 1 [Disabled]
Secondary IDE 0 [Disabled]
Secondary IDE 1 [Disabled]
FDD,COM,LPT Port [Disabled]
PCI PIRQ[A-D]# [Disabled]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.9: Power Management Setup

3.7.1 Power-Supply Type

Choose AT or ATX power supply

3.7.2 ACPI Function

The choice: Enabled, Disabled.

3.7.3 Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
HDD Power Down
Suspend Mode
There are four selections for Power Management, three of which have fixed mode settings.

Min. Power Saving	Minimum power management., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined (Default)	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

3.7.4 Video Off Method

This field defines the Video Off features. There are three options

V/H SYNC + Blank Blank the screen and turn off Vertical and Horizontal scanning.

DPMS Default setting, Allows BIOS to control the video display.

Blank Screen Writes blanks to video buffer.

3.7.5 Video Off in Suspend

When system is in suspend, video will turn off.

3.7.6 Suspend Type

The default setting for the Suspend Type field is Stop Grant.

3.7.7 Soft-Off by PWR-BTTN

If you choose “Instant-Off”, then pushing the ATX soft power switch button once will switch the system to “system off” power mode. You can choose “Delay 4 sec.” If you do, then pushing the button for more than 4 seconds will turn off the system, whereas pushing the button momentarily (for less than 4 seconds) will switch the system to “suspend” mode.

3.7.8 CPU THRM-Throttling

This field allows you to select the CPU THRM-Throttling rate.

The choices: 12.5%, 24.0%, 37.5%, 50.0%, 62.5%, 74.0%, 87.5%.

3.7.9 Primary/Secondary IDE 0/1

When Enabled, the system will resume from suspend mode if Primary/Secondary IDE 0 (1) is active.
The choice: Enabled, Disabled.

3.7.10 FDD,COM,LPT Port

When Enabled, the system will resume from suspend mode If FDD, COM Port or LPT Port is active.
The choice: Enabled, Disabled.

3.7.11 PCI PIRQ(A-D)#

When Enabled, the system will resume from suspend mode
if Interrupt occurs.
The choice: Enabled, Disabled.

3.8 PnP/PCI Configurations

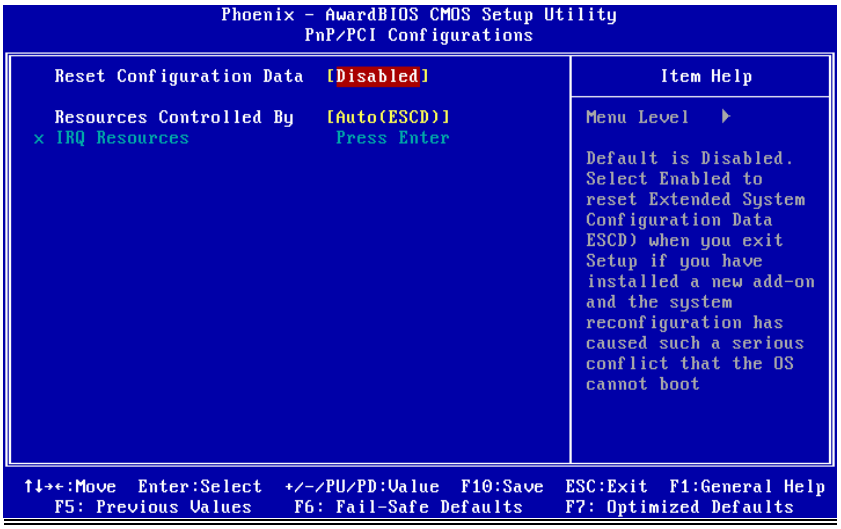

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources Press Enter
Item Help
Menu Level
Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.10: PnP / PCI Configurations

3.8.1 Reset Configuration Data

Default is Disable. Select Enable to reset Extended System Configuration Data (ESCD) if you have installed a new add-on and system configuration has caused such a conflict that OS cannot boot.

3.8.2 Resources Controlled By:

The commands here are “Auto” or “Manual.”
Choosing “manual” requires you to choose resources from each following sub-menu.
Choosing “Auto” automatically configures all the boot and Plug /Play devices but you must be using Windows 95 or above.

3.9 PC Health Status

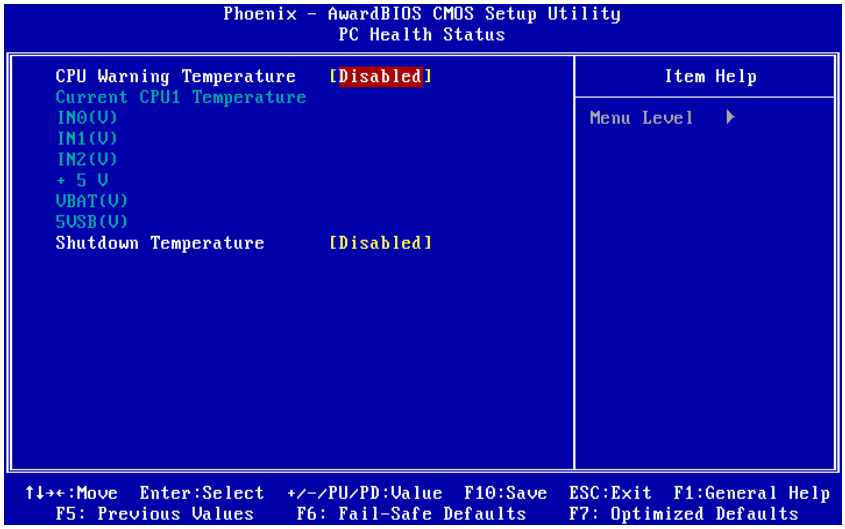


Figure 3.11: PC Health Status

3.9.1 CPU Warning Temperature

System will alert the user by providing warning sound when the setting temperature has been reached.

3.9.2 Shutdown Temperature

System will shutdown automatically when the setting temperature has been reached.

3.10 Frequency/ Voltage Control

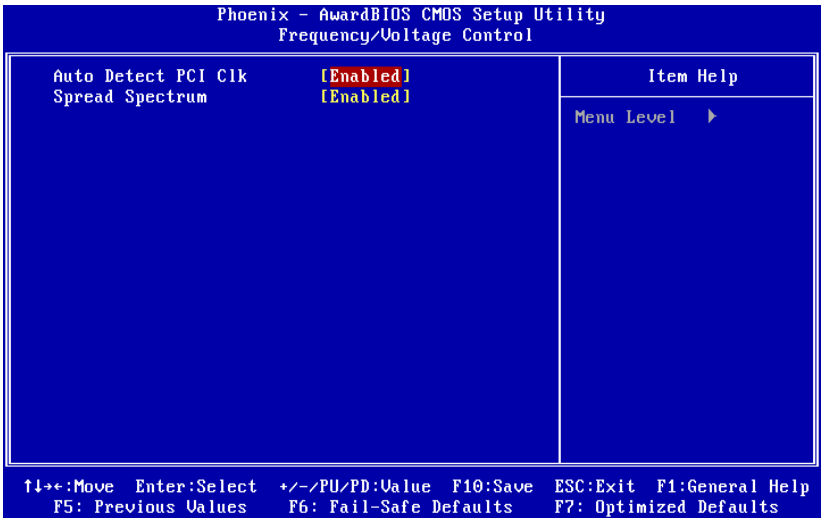

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
Auto Detect PCI Clk [Enabled]
Spread Spectrum [Enabled]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Figure 3.12: Frequency/Voltage Control

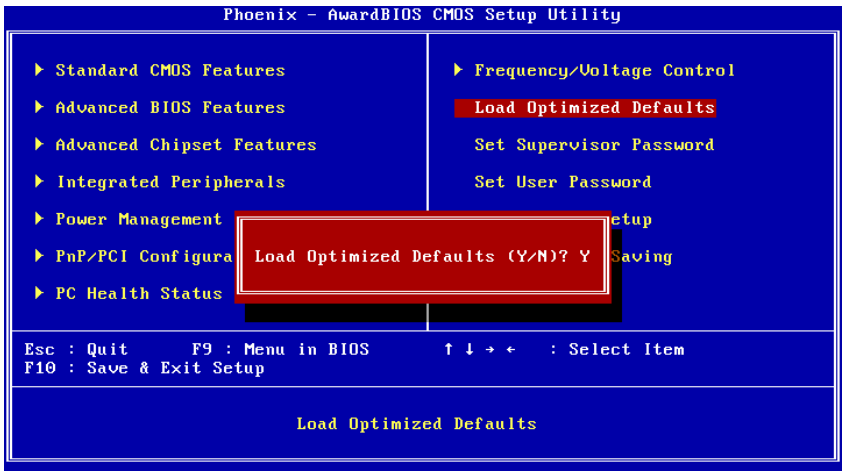
3.10.1 Auto Detect PCI Clk

Set Enabled if you want the BIOS to auto detect PCI clocks.

3.10.2 Spread Spectrum

Enable spread spectrum clock modulation to reduce EMI.

3.11 Load Optimized Defaults

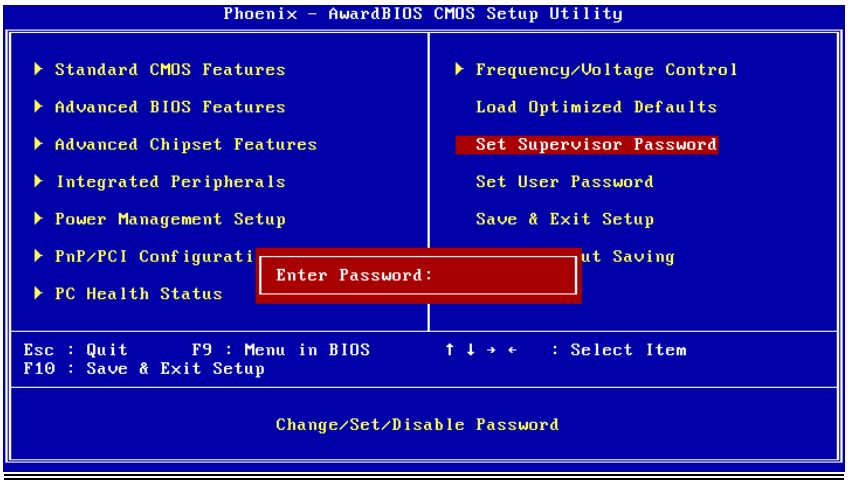


When you press <**Enter**> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)?

Pressing "**Y**" loads the default values that are factory settings for optimal performance system operations.

3.12 Set Supervisor Password



When you select this function, a message appears at the center of the screen:

Enter Password:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

Confirm Password:

Again, type the password and press **Enter**.

To abort the process at any time, press **Esc**.

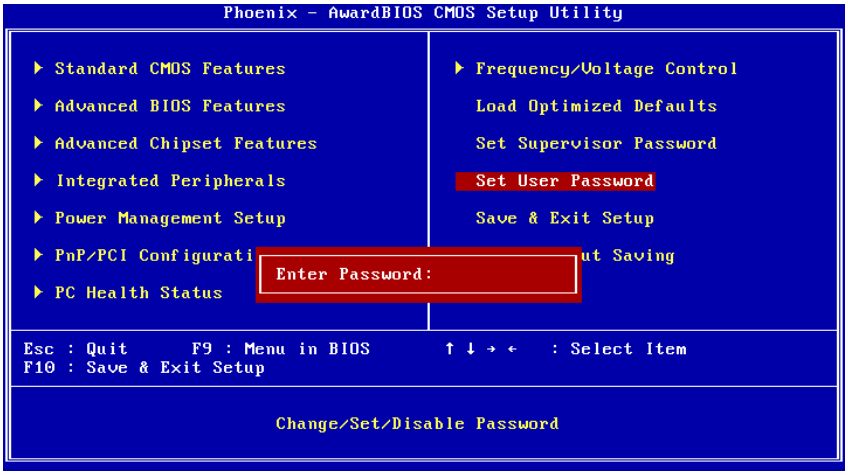
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and when ever you enter Setup.

Setup Enter a password when ever you enter Setup.

***NOTE**: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.*

3.13 Set User Password



When you select this function, a message appears at the center of the screen:

Enter Password:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

Confirm Password:

Again, type the password and press **Enter**.

To abort the process at any time, press **Esc**.

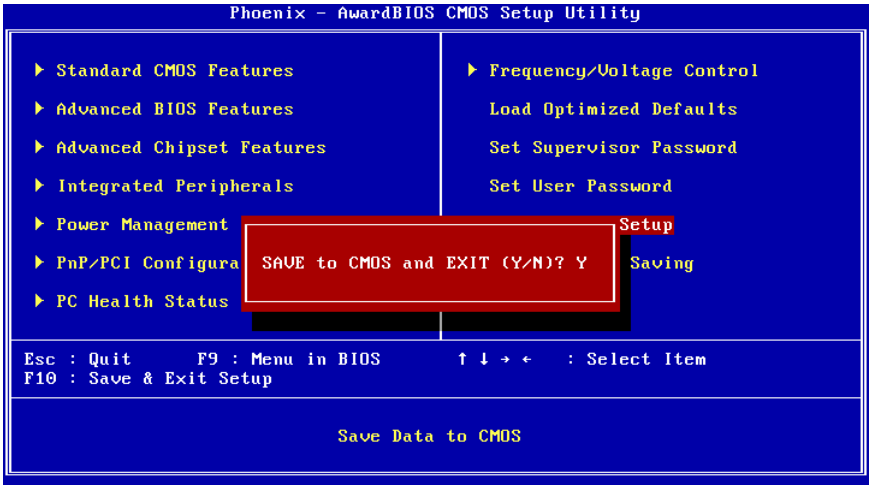
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and when ever you enter Setup.

Setup Enter a password when ever you enter Setup.

***NOTE**: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.*

3.14 Save & Exit Setup



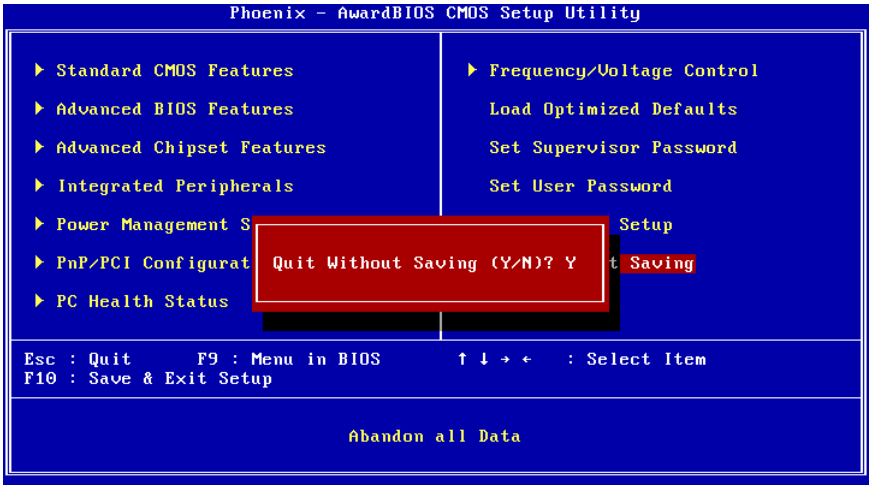
Pressing <Enter> on this item asks for confirmation:

Save to CMOS and Exit (Y/N)?

Pressing "**Y**" stores the selections made in the menus in CMOS, a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS.

After saving the values the system is restarted again.

3.15 Exit Without Saving



Pressing <**Enter**> on this item asks for confirmation:

Quit Without Saving (Y/N)?

This allows you to exit Setup without storing in CMOS any change.

The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 4 Chipset Software Installation Utility

4.1 Announcement

Please pay attention and read the instruction in this chapter very carefully before you are attempting to do any installation in order to enhanced display device drivers and utility software. The device drivers for the zito1xxx series board are located in the software installation CD. The driver CD will guide and link you to the utilities and device drivers under a **Windows system**. The Intel® Chipset Software Installation Utility is not required on any system running Windows XP. Updates are provided via Service Packs from Microsoft.

The files on the software installation CD are compressed. DO NOT attempt to install the drivers by copying the files manually. You MUST use the supplied SETUP program to install the drivers.

Before you are going to perform installation, it is very IMPORTANT to note that most display drivers need to have the relevant software application installed in the system before installing the enhanced display drivers. Additionally, many of the installation procedures will assume that you are familiar with both the relevant software applications and operating system commands. Please review the relevant operating system commands and the applicable sections of your application software's user manual before starting the installation.

4.2 Introduction

The Intel® Chipset Software Installation Utility installs to the targeted system of the Windows INF files which outline to the operating system in how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI and ISA PnP services
- USB 1.1/ USB 2.0 support
- Identification of Intel® chipset components in the “Device Manager”
- Integrates superior video features. These include filtered sealing of 720 pixel DVD content, and MPEG-2 motion compensation for software DVD

1. **This utility is used for the following versions of Windows system, and it has to be installed before performing all other drivers’ installation:**
   - **Windows 2000**
   - **Windows XP**
2. **The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.**

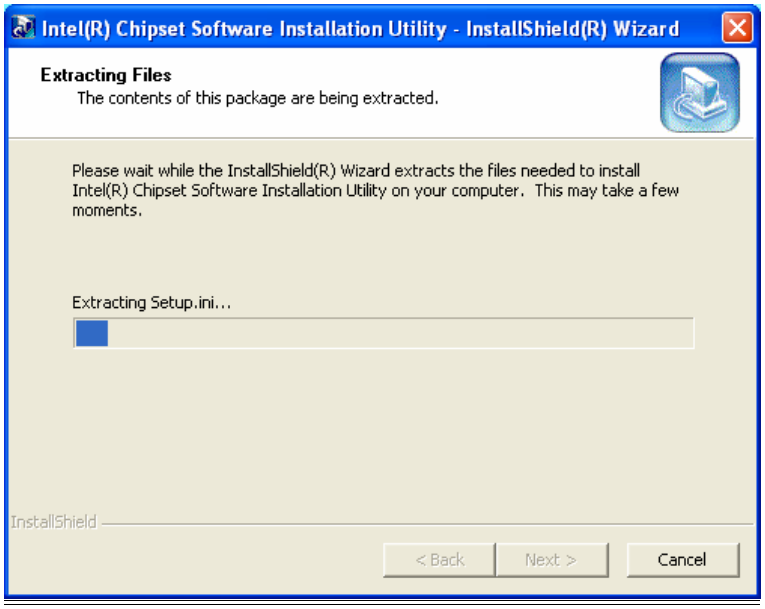
4.3 Installation Guide

4.3.1 Step 1

Insert the driver CD into system’s CD-ROM drive. Then click the “System Driver” icon to start installation.

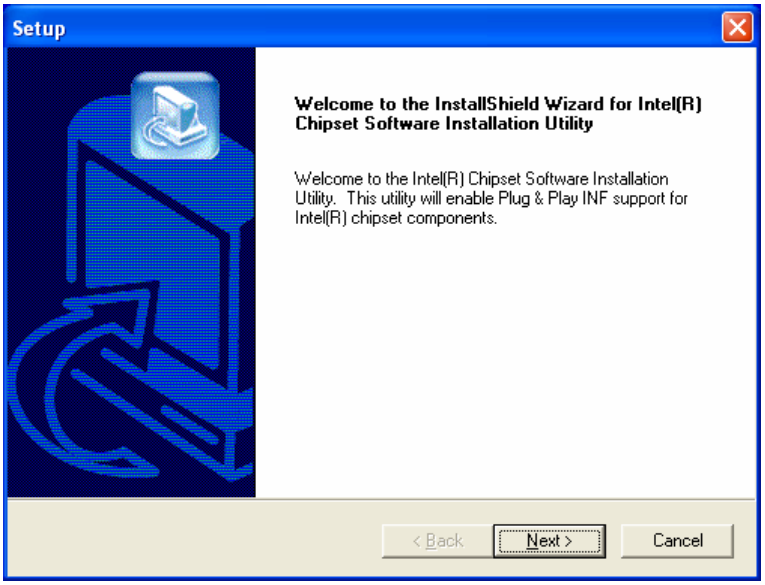
4.3.2 Step 2

The “Install Shield Wizard” appears to begin the installation process.


Intel(R) Chipset Software Installation Utility - InstallShield(R) Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield(R) Wizard extracts the files needed to install Intel(R) Chipset Software Installation Utility on your computer. This may take a few moments.
Extracting Setup.ini...
InstallShield
< Back
Next >
Cancel

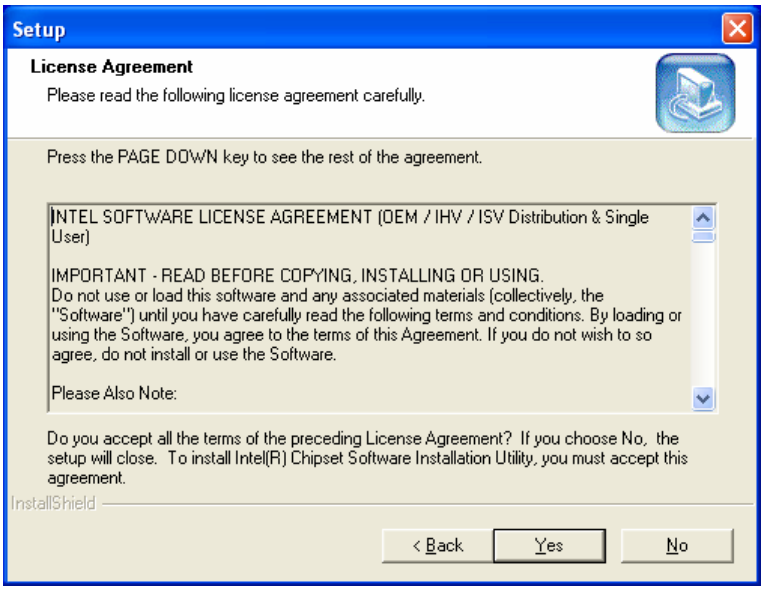
4.3.3 Step 3

Click “Next” when you see the following message.


Setup
Welcome to the InstallShield Wizard for Intel(R) Chipset Software Installation Utility
Welcome to the Intel(R) Chipset Software Installation Utility. This utility will enable Plug & Play INF support for Intel(R) chipset components.
< Back
Next >
Cancel

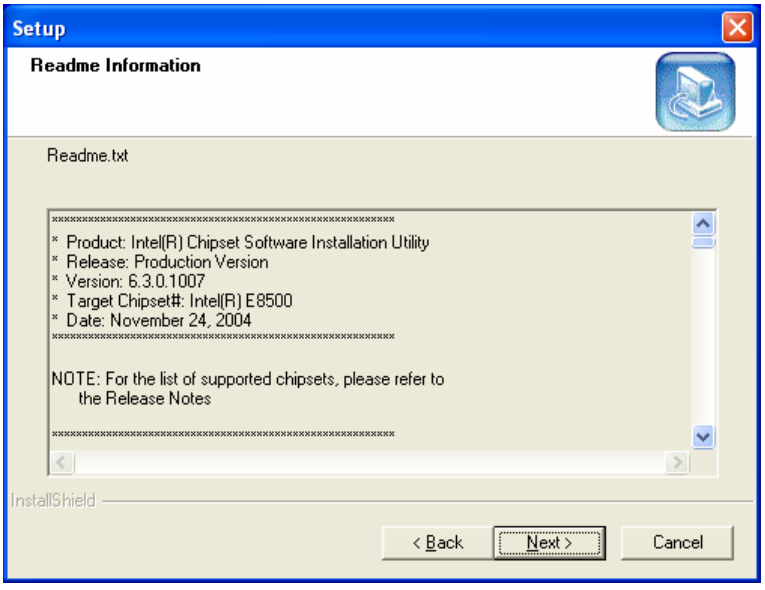
4.3.4 Step 4

Click “Yes” when you see the following message.


Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install Intel(R) Chipset Software Installation Utility, you must accept this agreement.
InstallShield
< Back
Yes
No

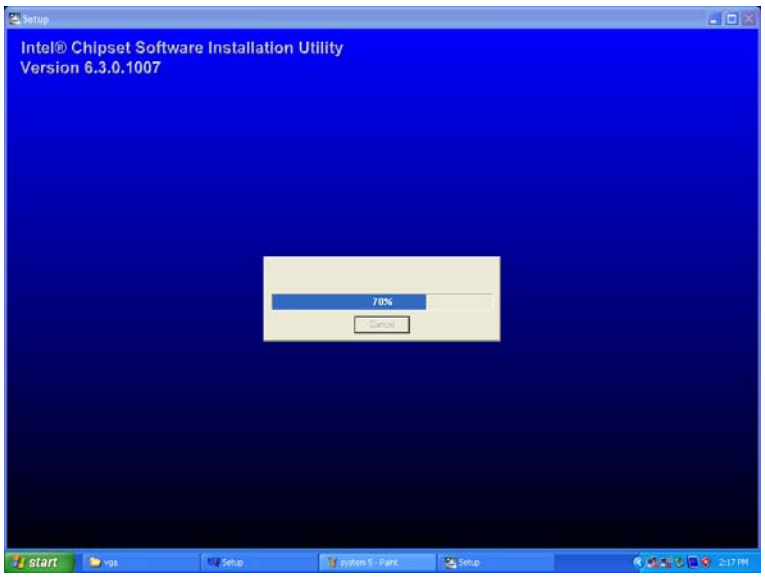
4.3.5 Step 5

Click “Next” when you see the following message.



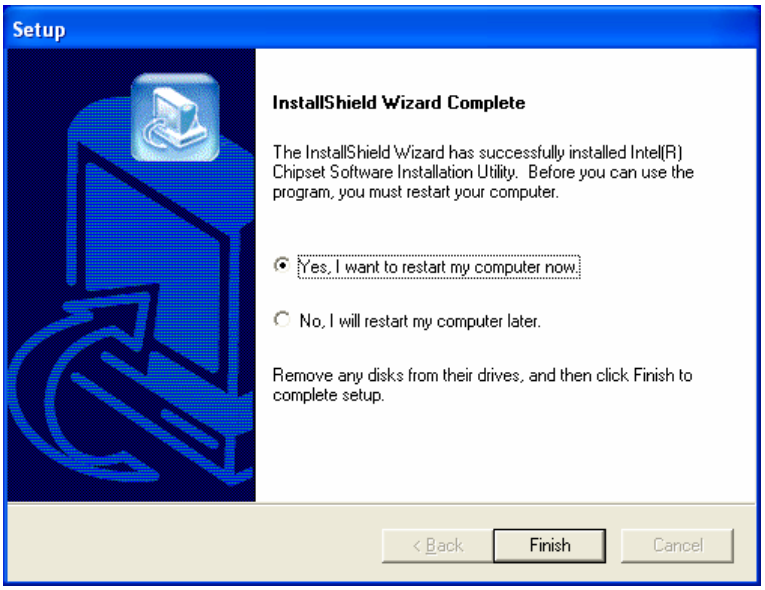
4.3.6 Step 6

Installation is in progress.



4.3.7 Step 7

When the following message appears, click “Finish” to complete the installation and restart Windows.


Setup
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Intel(R) Chipset Software Installation Utility. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Chapter 5 VGA/LCD Setup

5.1 Introduction

The zito1500 series come with onboard Intel 852GM chipset for AGP/VGA controller. This supports conventional analog CRT monitors with 64MB frame buffer shared with system memory. The graphics controller can deliver to the CRT display with resolutions up to 1600 x 1200@85-Hz.

5.1.1 CMOS setting for panel type

The zito1500 series system BIOS and the custom drivers are located within a 512kbytes, Flash ROM device. This flash chip holds the system and VGA BIOS together. The display can be configured through CMOS settings. This method minimized the number of chips and different type of panels, please choose "panel type" from the "integrated peripherals" menu in CMOS setting.

5.1.2 Display Type

The zito1500 series are set to be with one CRT monitor as default setting.

5.2 Installation of the VGA Driver

Please read the instructions in this chapter carefully before you attempt installation. The VGA drivers for the zito1500 series are located on the driver CD. Run the supplied SETUP program to install the drivers, don't copy the files manually.

1. **The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.**

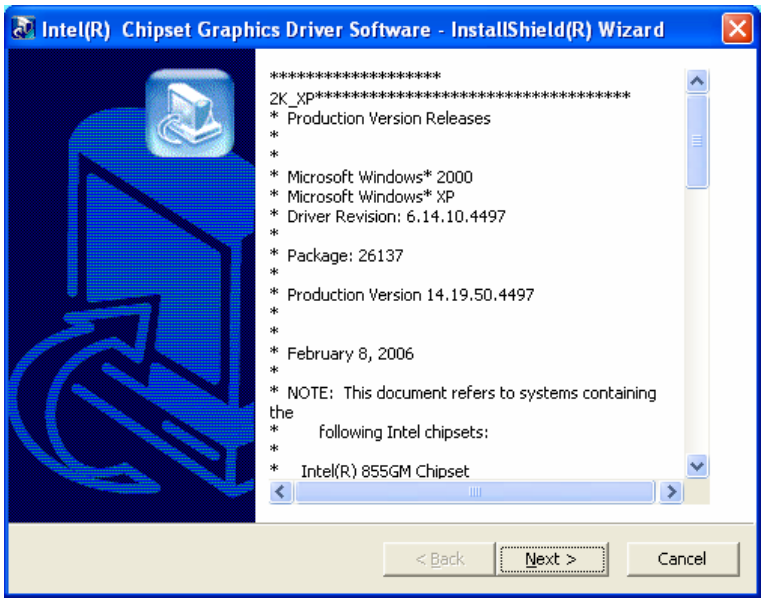
5.2.1 Installation Guide

5.2.1.1 Step 1

Insert the driver CD into system's CD-ROM drive. Then click the "VGA Driver" icon to start installation.

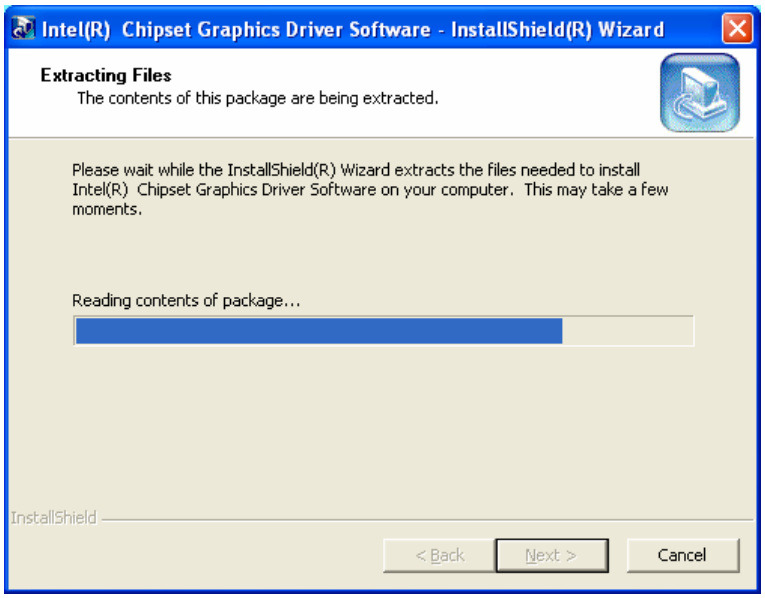
5.2.1.2 Step 2

Click “Next” to begin VGA driver installation.



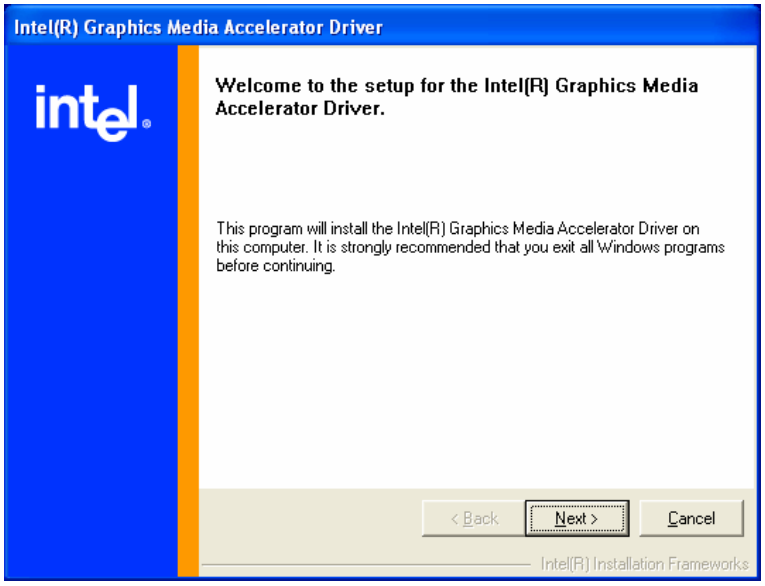
5.2.1.3 Step 3

Installation is in progress.


Intel(R) Chipset Graphics Driver Software - InstallShield(R) Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield(R) Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

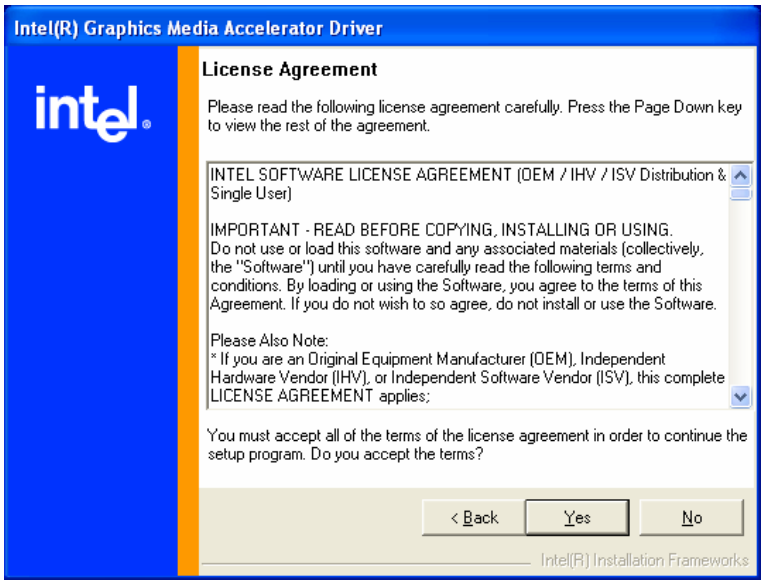
5.2.1.4 Step 4

Click "next" when you see the following message.


Intel(R) Graphics Media Accelerator Driver
intel
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

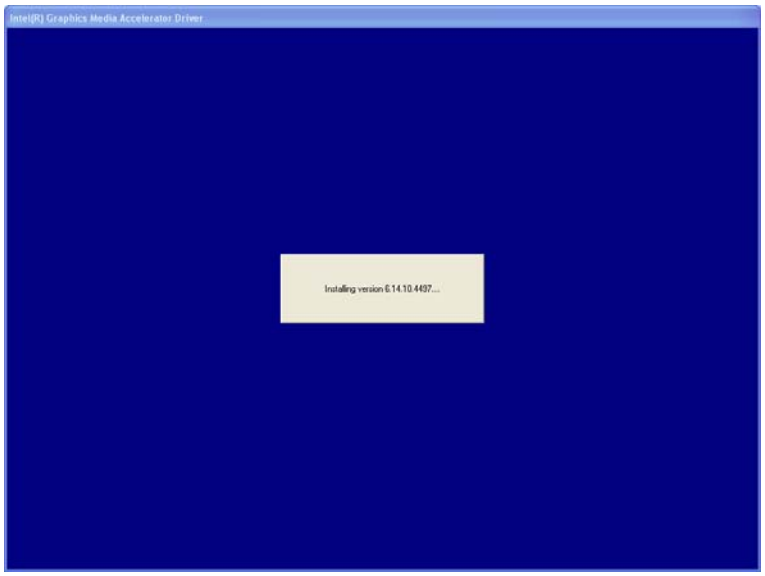
5.2.1.5 Step 5

Click “Yes” when you see the following message.


Intel(R) Graphics Media Accelerator Driver
intel
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

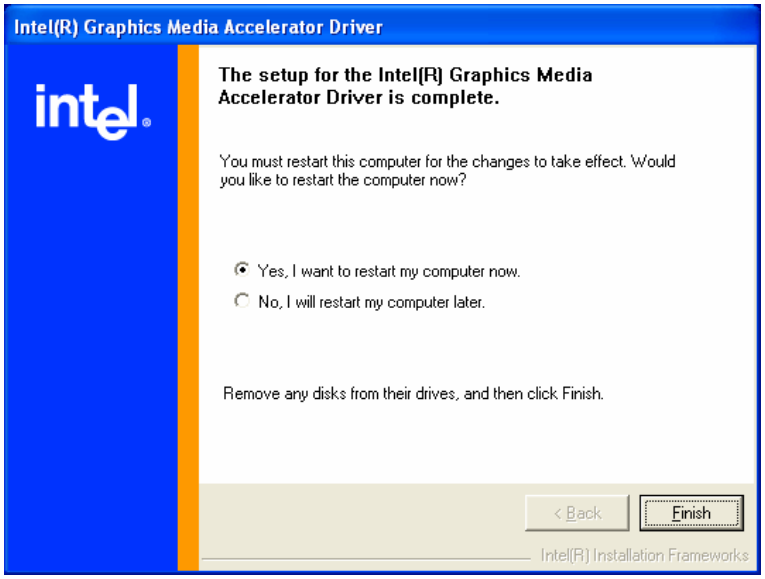
5.2.1.6 Step 6

Installation continues.



5.2.1.7 Step 7

When the following message appears, click “Finish” to complete the installation and restart Windows.


Intel(R) Graphics Media Accelerator Driver
intel
The setup for the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish.
< Back
Finish
Intel(R) Installation Frameworks

5.3 Further Information

For further information about the AGP/VGA installation in your zito1500 series, including driver updates, troubleshooting guides and FAQ lists, contact your supplier where you have purchased from or visit the following web resources:

Intel website: www.intel.com

Chapter 6 Audio Setup

6.1 Introduction

The zito1500 series audio features a high-quality stereo sound and the FM music synthesis (also known as ESFM), using the Intel ICH4 audio controller chipset and Realtek AC'97 CODEC. This audio interface can perform record, compress, along with play back voice, sound, and music inside the built-in mixer control.

6.2 Driver Installation

6.2.1 Announcement

Please read the instructions in this chapter carefully before you attempt installation. The audio drivers for the zito1500 series are located on the driver CD. Run the supplied SETUP program to install the drivers, don't copy the files manually.

1. **The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.**

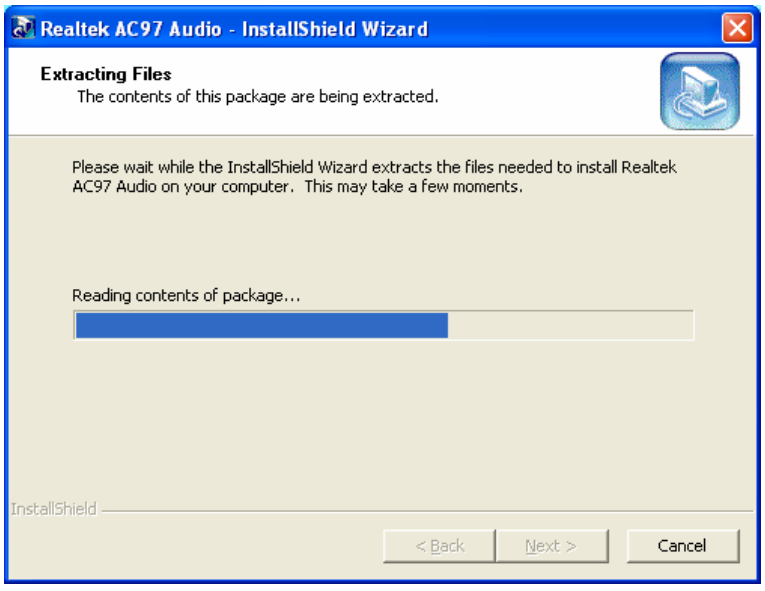
6.2.2 Installation Guide

6.2.2.1 Step 1

Insert the driver CD into system's CD-ROM drive. Then click the "Audio Driver" icon to start installation.

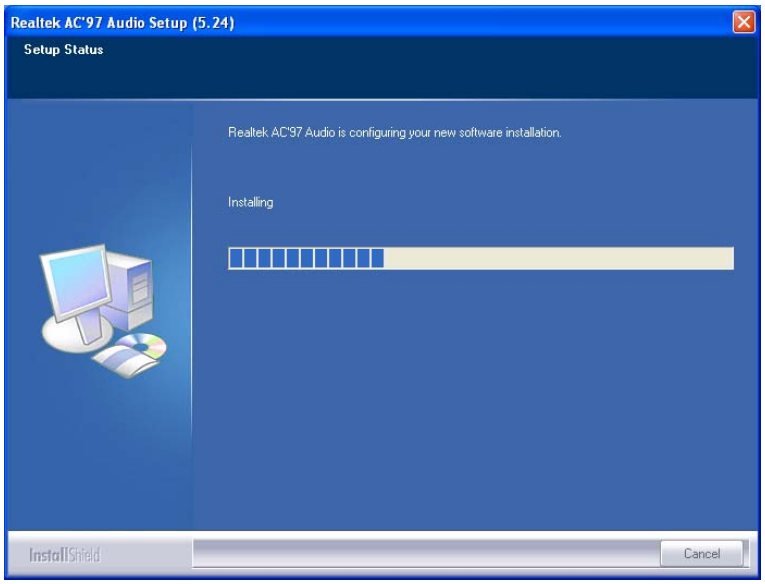
6.2.2.2 Step 2

Click "Next" when you see the following message.


Realtek AC97 Audio - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install Realtek AC97 Audio on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

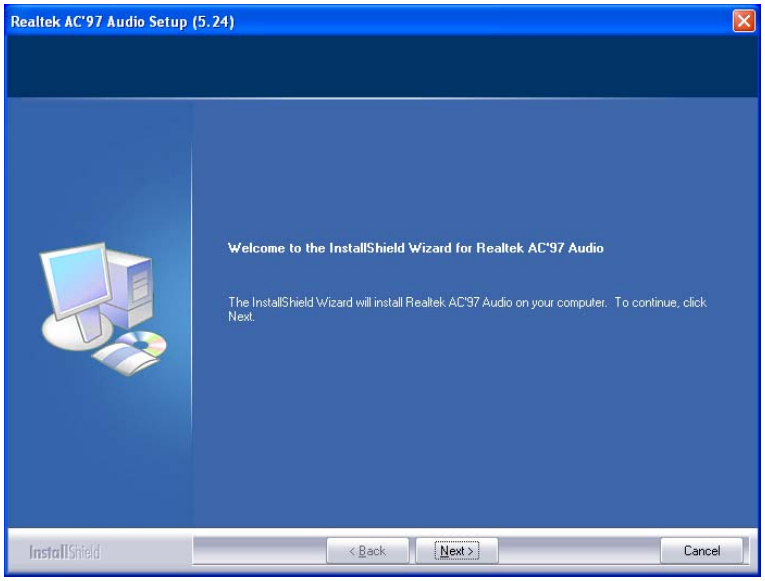
6.2.2.3 Step 3

Installation is in progress.



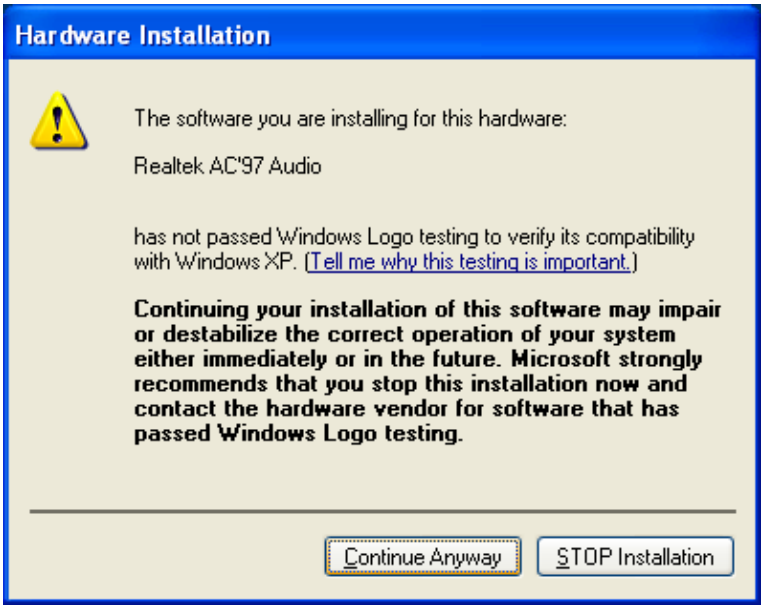
6.2.2.4 Step 4

Click “Continue Anyway” when you see the following message


Realtek AC'97 Audio Setup (5.24)
Welcome to the InstallShield Wizard for Realtek AC'97 Audio
The InstallShield Wizard will install Realtek AC'97 Audio on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

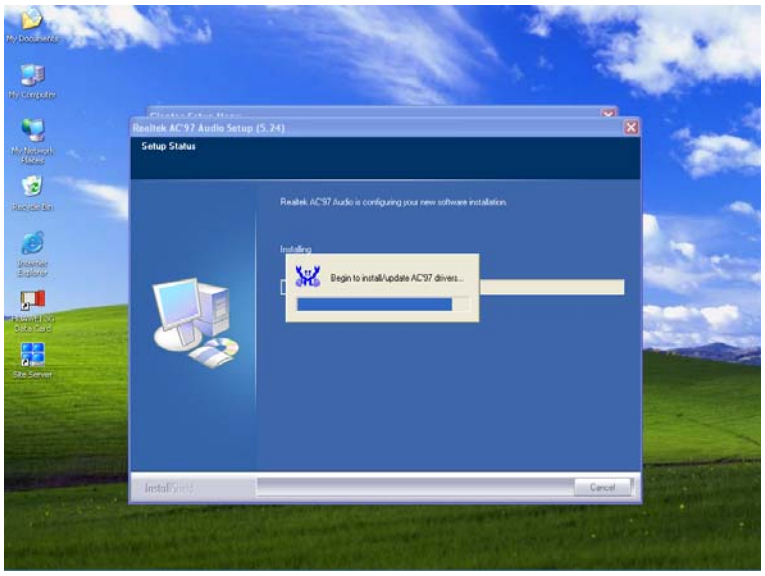
6.2.2.5 Step 5

Installation is in progress.

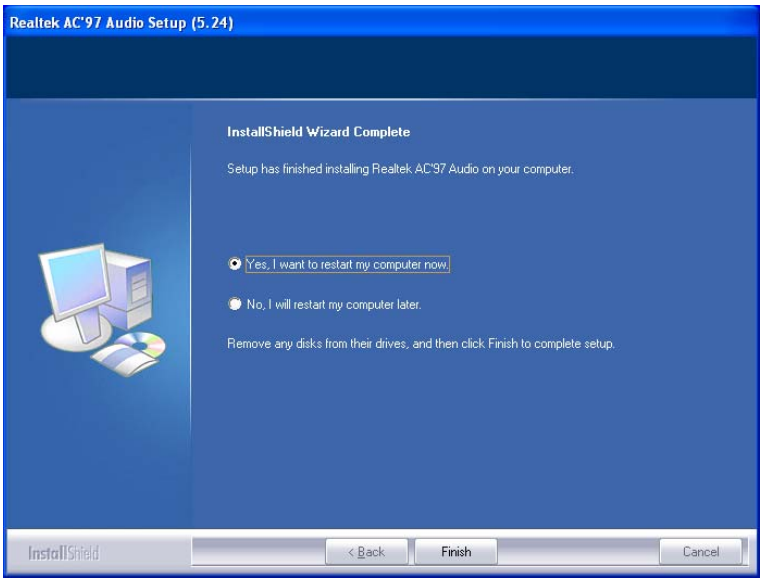

Hardware Installation
The software you are installing for this hardware:
Realtek AC'97 Audio
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

6.2.2.6 Step 6

When the following message appears, click “Finish” to complete the installation and restart Window



6.2.2.7 Step 7


Realtek AC'97 Audio Setup (5.24)
InstallShield Wizard Complete
Setup has finished installing Realtek AC'97 Audio on your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

6.3 Further Information

For further information about the audio installation in your zito1500 series, including driver updates, troubleshooting guides and FAQ lists, contact your supplier where you have purchased from or visit the following web resources:

Realtek website: www. realtek.com.tw

Chapter 7 LAN Interface

7.1 Introduction

The zito1500 is equipped with a high performance LAN/Ethernet chipset which is fully compliant with IEEE 802.3u 10/100Base-T CSMA/CD standards. The LAN/Ethernet port provides a standard RJ-45 jack connector with LED indicators on the front side to show its Active/Link status.

7.2 Installation of Ethernet Driver

Please read the instructions in this chapter carefully before you attempt installation. The LAN driver for the zito1500 is located on the driver CD. Run the supplied SETUP program to install the drivers, don't copy the files manually.

1. **The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.**

7.2.1 Installation Guide

7.2.1.1 Step 1

Insert the driver CD into system's CD-ROM drive. Then click the "LAN Driver" icon to start installation.

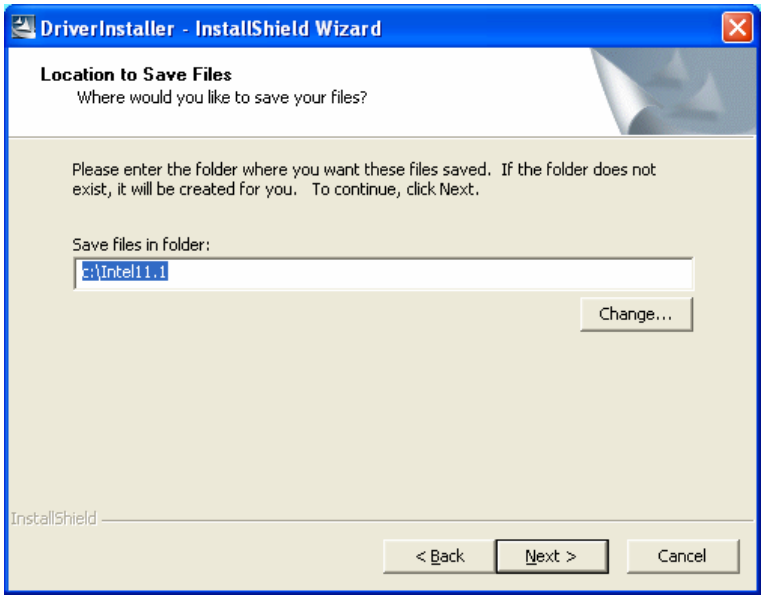
7.2.1.2 Step 2

Click "I accept the terms in the license agreement" and then click "Next" to start installation.

DriverInstaller - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

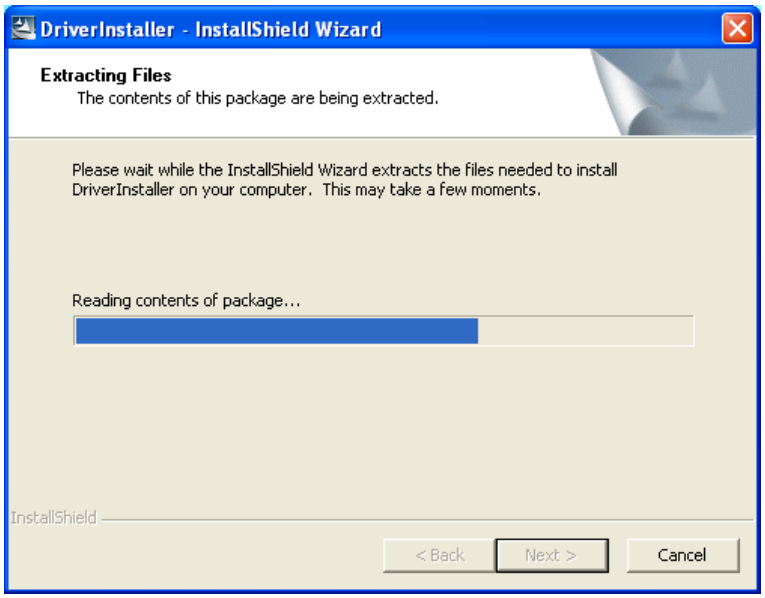
7.2.1.3 Step 3

Click “Next” when you see the following message.


DriverInstaller - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
c:\Intel11.1
Change...
InstallShield
< Back
Next >
Cancel

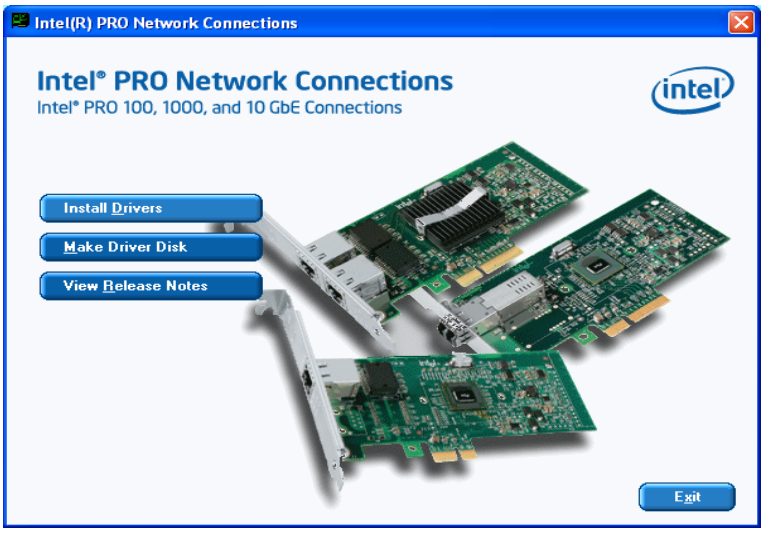
7.2.1.4 Step 4

Installation is in progress.


DriverInstaller - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install DriverInstaller on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

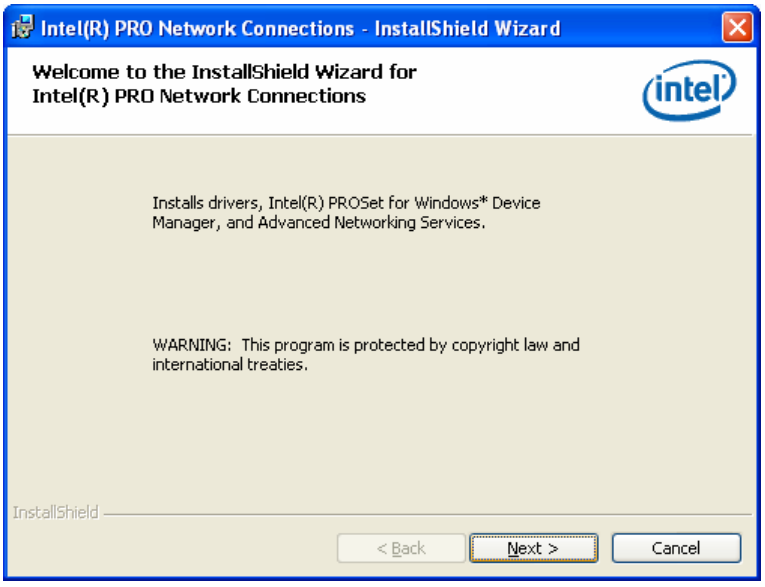
7.2.1.5 Step 5

Click “Install Drivers” when you see the following message.



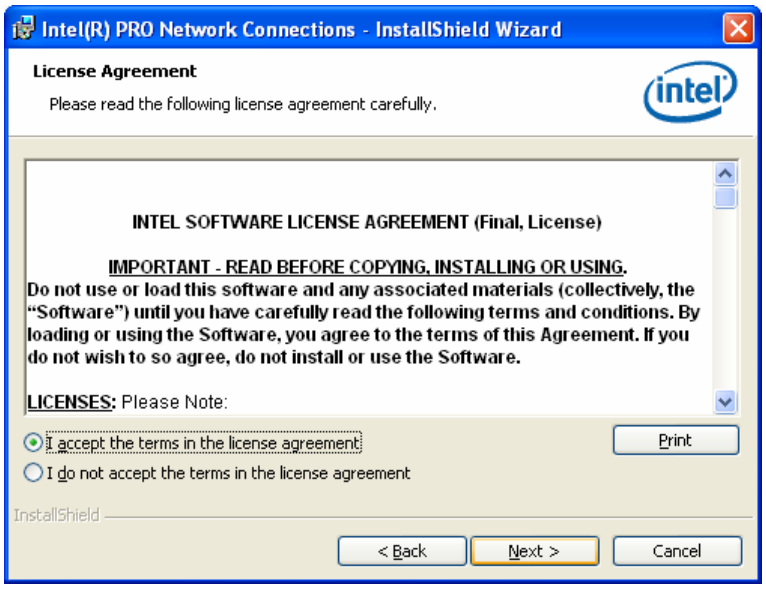
7.2.1.6 Step 6

Click “Next” when you see the following message.


Intel(R) PRO Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for
Intel(R) PRO Network Connections
intel
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

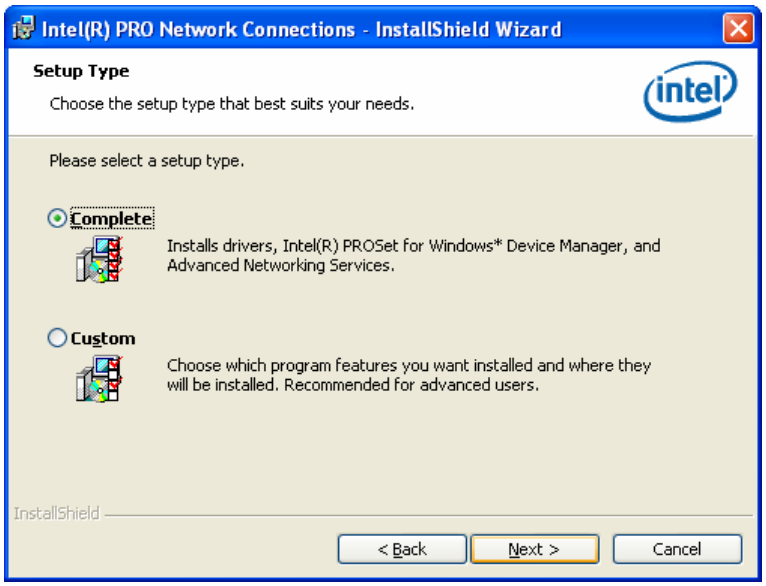
7.2.1.7 Step 7

Click “I accept the terms in the license agreement” and then click “Next” to begin.


Intel(R) PRO Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

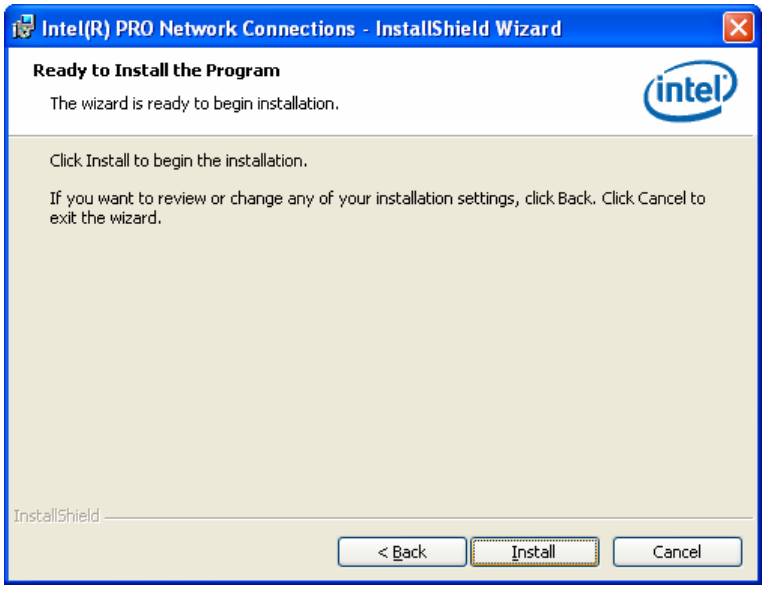
7.2.1.8 Step 8

Click “Complete” and then click “Next” when you see the following message.


Intel(R) PRO Network Connections - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Complete
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

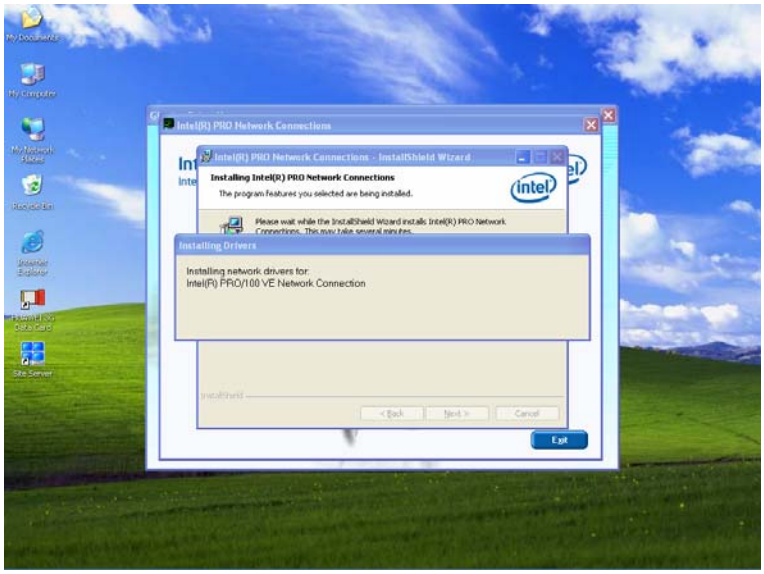
7.2.1.9 Step 9

Click “Install” when you see the following message.


Intel(R) PRO Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
intel
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

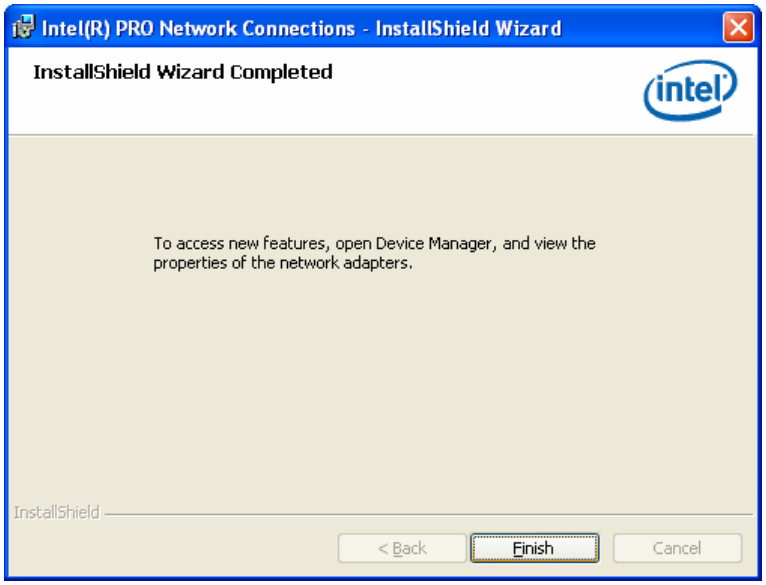
7.2.1.10 Step 10

Installation is in progress.


Intel(R) PRO Network Connections
Intel(R) PRO Network Connections - InstallShield Wizard
Installing Intel(R) PRO Network Connections
The program features you selected are being installed.
Installing Drivers
Installing network drivers for:
Intel(R) PRO/100 VE Network Connection
Exit

7.2.1.11 Step 11

When the following message appears, click “Finish” to complete the installation.



7.3 Further Information

For further information about the LAN installation in your zito1500 series, including driver updates, troubleshooting guides and FAQ lists, contact your supplier where you have purchased from or visit the following web resources:

Intel website: www.intel.com

Chapter 8 Wireless LAN Interface

8.1 Introduction

The zito15xxP is equipped with Mini-PCI socket on board which gives you the ability to add additional Wi-Fi interface and brings up the enjoyment of wireless LAN ability. This chapter and driver installation is only suitable for “VIA networking technologies PCI-Cardbus wireless LAN adapter” with product named “VT6655”. If you are not sure about this, please contact your supplier where you have purchased from to clarify with this.

8.2 Installation of Wireless LAN Driver

Before installing the Wireless LAN driver, note the procedures below. Please read the instructions in this chapter carefully before you attempt installation. The wireless LAN drivers for the zito1xxxP series are located on the driver CD. Run the supplied SETUP program to install the drivers, don’t copy the files manually.

1. **The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.**

8.2.1 Installation Guide

8.2.1.1 Step 1

Insert the driver CD into system's CD-ROM drive. Then click the "WLAN Driver" icon to start installation.

8.2.1.2 Step 2

Installation is in progress.

8.2.1.3 Step 3

When the following message appears, click “OK” to complete the installation.

8.3 Further Information

For further information about the WLAN installation in your zito15xxP, including driver updates, troubleshooting guides and FAQ lists, contact your supplier where you have purchased from or visit the following web resources:

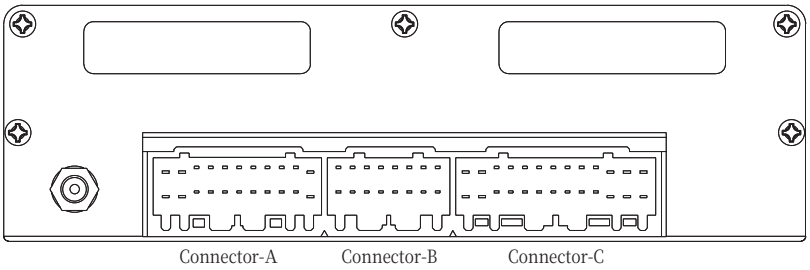
VIA website: www.via.com

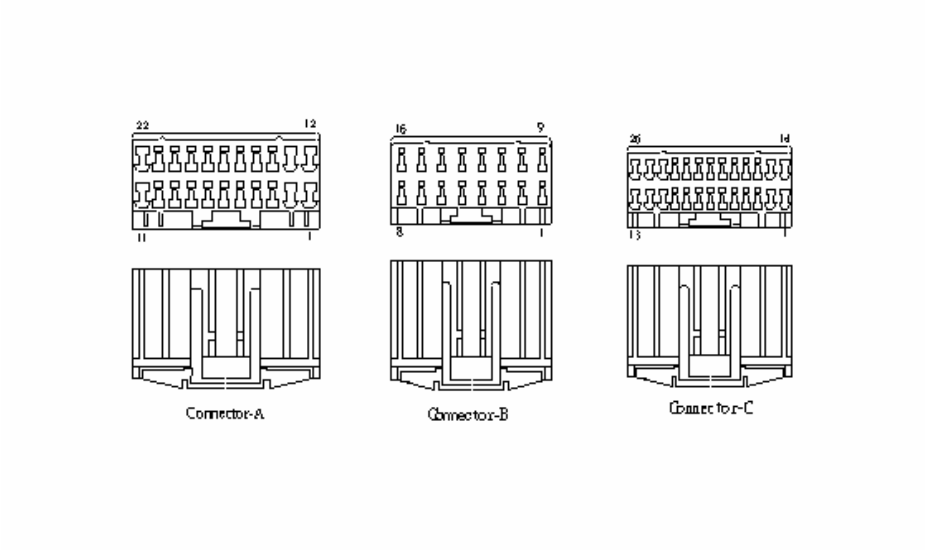
Appendix A

Connectors' Pin Assignment

1 External Connector

1.1 Pin Assignment for MultiLock Connector





1.2 GPIO/Video Connector

Signal	Pin Number of Connector A	
	Zito1304/1304P	Zito1308P
GPIO-1	12	12
GPIO-2	1	1
GPIO-3	13	13
GPIO-4	2	2
Audio-1	15	15
Audio-2	4	4
Audio-3	14	14
Audio-4	3	3
Ground	5	5
Video In-1	20	20
Video In-2	9	18
Video In-3	19	9
Video In-4	8	7
Video In-5	N/C	19
Video In-6	N/C	17
Video In-7	N/C	8
Video In-8	N/C	6
Video Ground	16	16
Microphone In	10	10
Audio Line In-R	22	22
Audio Line In-L	11	11
Audio Ground	21	21

NOTE: GPIO is TTL compatible interface.

1.3 LAN (RJ-45) Connector

PIN No#	LAN	Pin No# of Connector B
1	RX -	2
2	RX +	1
3	TX -	9
6	TX +	10
9	ACT LED	3
11	LINK LED	11
10,12	VCC	12

1.4 USB Connector

USB Port		Pin No# of Connector B
PIN No#	Name	PIN
1	USB Power 1	4
2	USB0 -	15
3	USB0 +	16
2	USB1 -	7
3	USB1 +	8
1	USB Power 0	6
2	USB2 -	13
3	USB2 +	5
4	GND	14

1.5 CRT Display Connector (VGA)

PIN No#	Signal	Pin No# of Connector C
1	RED	5
2	GREEN	17
3	BLUE	4
4,9,11,12,15	N/C	N/C
5,6,7,8,10	GND	18
13	H-SYNC	15
14	V-SYNC	16

1.6 Audio Output Connector

Audio Out Connector		Pin No# of Connector C
PIN No#	Name	PIN
1	Audio Line Out-R	2
2	Audio Line Out-L	1
3	Audio GND	14

1.7 COM1/RS-232 Connector

PIN No#	COM1/RS-232	Pin No# of Connector C
1	DCD	24
2	RxD	23
3	TxD	22
4	DTR	21
5	GND	20
6	DSR	10
7	RTS	9
8	CTS	8
9	RI	7

1.8 Power Source

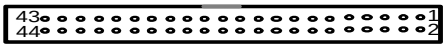
Power In		Pin No# of Connector C
PIN No#	Name	PIN
1	12/24V +	12
2	12/24V +	13
3	GND	25
4	GND	26

1.9 Other Connectors

The connectors allow zito1500 series to be connected with other parts of system's components as from the evaluation cables. Problems may encounter during loose or improper connections. Please ensure all connectors are in place and firmly attached.

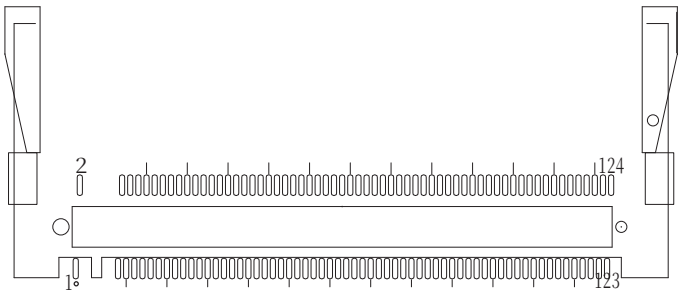
Component	Location
HDD (IDE) Connector	IDE
Line In	Connector A
Microphone	Connector A
Video Input	Connector A
Audio Input	Connector A
GPIO	Connector A
LAN	Connector B
USB Connector	Connector B
External Power Connector	Connector C
Serial Port	Connector C
VGA Connector	Connector C
Line Out	Connector C

1.9.1 HDD Connector (IDE)



Pin no.	Signal	Pin no.	Signal
1	- RST	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	N.C.
21	DREQ	22	GND
23	IOW	24	GND
25	IOR	26	GND
27	IORDY	28	BALE
29	DACK	30	GND
31	IRQ	32	-IO CS16
33	A1	34	DIAG
35	A0	36	A2
37	CS0	38	CS1
39	-ACT	40	GND
41	+5V	42	+5V
43	GND	44	N.C.

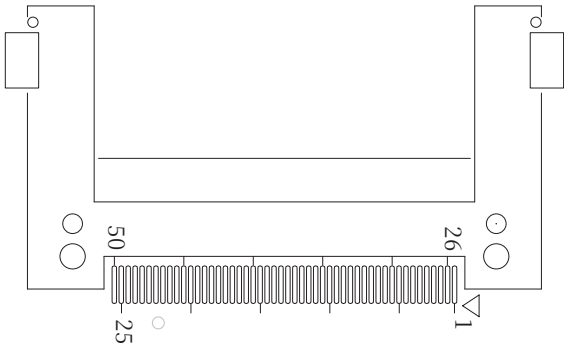
1.9.2 Mini PCI Connector



Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	N.C.	2	N.C.	3	N.C.
4	N.C.	5	N.C.	6	N.C.
7	N.C.	8	N.C.	9	N.C.
10	N.C.	11	N.C.	12	N.C.
13	N.C.	14	N.C.	15	GND
16	N.C.	17	INTB#	18	+5V
19	+3.3V	20	INTA#	21	N.C.
22	N.C.	23	GND	24	+3.3V
25	CLK	26	RST#	27	GND
28	+3.3V	29	REQ#	30	GNT#
31	+3.3V	32	GND	33	AD31
34	PME#	35	AD29	36	N.C.
37	GND	38	AD30	39	AD27
40	+3.3V	41	AD25	42	AD28
43	N.C.	44	AD26	45	CBE3#
46	AD24	47	AD23	48	IDSEL
49	GND	50	GND	51	AD21
52	AD22	53	AD19	54	AD20
55	GND	56	PAR	57	AD17
58	AD18	59	CBE2#	60	AD16
61	IRDY#	62	GND	63	+3.3V
64	FRAME#	65	CLKRUN#	66	TRDY#
67	SERR#	68	STOP#	69	GND
70	+3.3V	71	PERR#	72	DEVSEL#
73	CBE1#	74	GND	75	AD14
76	AD15	77	GND	78	AD13
79	AD12	80	AD11	81	AD10
82~83	GND	84	AD9	85	AD8
86	CBE0#	87	AD7	88	+3.3V
89	+3.3V	90	AD6	91	AD5
92	AD4	93	N.C.	94	AD2
95	AD3	96	AD0	97	+5V

98	N.C.	99	AD1	100	N.C.
101	GND	102	GND	103	N.C.
104	GND	105	N.C.	106	N.C.
107	N.C.	108	N.C.	109	GND
110	N.C.	111	N.C.	112	N.C.
113	GND	114	GND	115	N.C.
116	N.C.	117	N.C.	118	N.C.
119	GND	120	GND	121	N.C.
122	N.C.	123	+5V	124	+3.3V

1.9.3 CF Card Connector



Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	GND	2	D03	3	D04
4	D05	5	D06	6	D07
7	CS1#	8	GND	9	GND
10	GND	11	GND	12	GND
13	+3.3V	14	GND	15	GND
16	GND	17	GND	18	A02
19	A01	20	A00	21	D00
22	D01	23	D02	24	N.C.
25	GND	26	GND	27	D11
28	D12	29	D13	30	D14
31	D15	32	CS3#	33	GND
34	IOR#	35	IOW#	36	+3.3V
37	IRQ	38	+3.3V	39	CSEL#
40	N.C.	41	RST#	42	IORDY
43	DREQ	44	DACK	45	ACTIVE#
46	PDIAG	47	D08	48	D09
49	D10	50	GND		

Appendix B

Tool for BIOS Update

The updating procedures as the following:

1. It is recommended that you should copy the utility “AWDFLASH.EXE” in driver CD and BIOS binary files into a floppy disk or a USB disk drive. Alternatively, you can copy these two files into the directory that you have made in hard disk.
2. Restart your computer into MS-DOS mode or command prompt only for windows, then move into the directory where the new BIOS file located and use the utility AWDFLASH.EXE to update the BIOS.
3. Type “AWDFLASH new bios filename” under the prompt.
4. Turn off the power after the system updates the BIOS.
5. Turn on the power again.

Appendix C

Watchdog Timer

The function of the watchdog timer is to reset the system automatically when watchdog time out. It contains a one-second resolution down counter (in CRF6 of logical device 8 of super I/O chip) and two watchdog control registers (CRF5 and CRF7 of logical device 8). It can use compatible PnP protocol to access configuration registers for setting up watchdog timer configuration.

In compatible PnP, a specific value (87h) must be written twice to the EFER. Secondly, an index value must be written to the Extended Functions Index Register (I/O port 2Eh or 4Eh same as Extended Functions Enable Register) to identify which configuration register is to be accessed (the Logical Device 8). The designer can then access the desired configuration registers (CRF5, CRF6, CRF7) through the Extended Functions Data Register (I/O port address 2Fh or 4Fh). After programming of configuration register is finished, exit the extended function mode by writing 0AAh to the Extended Functions Enable Register EFER (I/O port address 2Eh or 4Eh).

Extended Functions Enable Registers (EFERs)

After a power-on reset, the super I/O enters the default operating mode, before entering the extended function mode. A specific value must be programmed into the Extended Function Enable Register (EFER), so the extended function register can be accessed.

Extended Functions Index Registers (EFIRs), Extended Functions Data Registers (EFDRs),

After the extended function mode is entered, the Extended Function Index Register (EFIR) must be loaded with index value (02h, 07h~FEh) to access Configuration Register 0 (CR0), Configuration Register7 (CR07) to Configuration Register FE (CRFE), and so forth through the extended Function Data Register (EFDR). The EFIRs are written register only with port address 2Eh or 4Eh. The EFDRs are read/write registers with port address 2Fh or 4Fh.

Configuration Sequence

To program configuration registers, the following configuration sequence must be followed as.

1. Enter the extended function mode:
   To place the chip into the extended function mode, two successive writites of 0x87 must be applied to the Extended Functions Enable Register EFER (I/O port address 2Eh or 4Eh).
2. Configure the configuration registers:
   The chip selects the logical device and activates the desired logical devices through Extended Function Index Register (EFIR) and Extended Function Data Register (EFDR). EFIR is located at the same address as EFER, and EFDR is located at address (EFIR+1). First, write the Logical Device Number (i.e., 0x07) to the EFIR and then write the number of desired logical device to the EFDR. Secondly, write the address of desired configuration register within the logical device to EFIR and then write (or read) the desired configuration register through EFDR.
3. Exit the extended function mode:
   After programming of configuration register is finished. Exit the extended function mode by writing 0xAAh to the Extended Functions Enable Register EFER (I/O port address 2Eh or 4Eh). Once the chip exits the extended function mode, it is the normal running mode and is ready to enter the configuration mode.

Data Register information (Logical Device 8)

CRF5 (Default 0x00)

Bit 7-6: Select PLED mode
Bit 5-4: Reserved
Bit3: Select Watchdog count mode
= 0 second
= 1 mintue
Bit2: Enable the rising edge of keyboard Reset to force Time-out event.
= 0 Disable
= 1 Enable
Bit 1-0: Reserved

CRF6 (Default 0x00)

Watchdog timer time out value is writing a non-zero value to this register causes the counter to load the value to watchdog counter and start counting down. If the Bit 7 and Bit 6 are set, any mouse interrupt or Keyboard Interrupt event will also cause the reload of previously-loaded non-zero value to watchdog counter and start counting down. Reading this register returns current value in watchdog counter instead of watchdog timer time-out value.

Bit 7-0:
= 0x00 Time-out Disable
= 0x01 Time-out occurs after 1 second/mintue
= 0x02 Time-out occurs after 2 second/mintue
= 0x03 Time-out occurs after 3 second/mintue
.
.
.
= 0xFF Time-out occurs after 255 second/mintue

CRF7 (Default 0x00)

Bit 7: Mouse interrupt reset Enable or Disable
= 1 Watchdog Timer is reset upon a Mouse interrupt
= 0 Watchdog Timer is not affected by Mouse interrupt
Bit 6: Keyboard interrupt reset Enable or Disable
= 1 Watchdog Timer is reset upon a Keyboard interrupt
= 0 Watchdog Timer is not affected by Keyboard interrupt
Bit 5: Force Watchdog Timer time-out, write only*
= 1 Force Watchdog Timer time-out event, this bit is self-clearing.
Bit 4: Watchdog Timer Status, R/W
= 1 Watchdog Timer time-out occurred.
= 0 Watchdog Timer counting.
Bit 3-0: These bits select IRQ resource for Watchdog. Setting of 2 selects SMI.

Software programming example

The following example is written in Intel 8086 assembly language. It assumes that the EFER is located at 2Eh, so the EFIR is located at 2Eh and EFDR is located at 2Fh. It will reset the system in 30 seconds. We can use both keyboard interrupt and mouse interrupt to cause the watchdog to reload and start to count down from the value of CRF6.

```
.model small
.code
.startup
begin:
        ;--------------------------------------------------------------------------|
        ; Enter the extend function mode, interrupt double-write          |
        ;--------------------------------------------------------------------------|
         mov     dx,2eh
         mov     al,87h
         out     dx,al
         out     dx,al
         mov     dx,2eh
         mov     al,2bh          ;CR2B,   bit4-> 0 = WDTO
                                          ;bit4-> 1 = GP24
```

```
        out     dx,al
        mov     dx,2fh
        mov     al,0c0h
        out     dx,al
        ;-------------------------------------------------------------------------|
        ; Configurate logical device 8, configuration register CRF0              |
        ;-------------------------------------------------------------------------|
        mov     dx,2eh
        mov     al,07h
        out     dx,al           ;point to logical device number register
        mov     dx,2fh
        mov     al,08h          ;device 8
        out     dx,al

        mov     dx,2eh
        mov     al,30h
        out     dx,al
        mov     dx,2fh
        mov     al,01h          ;enable device 8
        out     dx,al

        mov     dx,2eh
        mov     al,07h
        out     dx,al
        mov     dx,2fh
        mov     al,08h          ;device 8
        out     dx,al

        mov     dx,2eh
        mov     al,0f7h
        out     dx,al           ;device 8,CRF7
        mov     dx,2fh
        mov     al,0c0h
        out     dx,al

        mov     dx,2eh
        mov     al,07h
        out     dx,al
        mov     dx,2fh
        mov     al,08h
        out     dx,al           ;device 8

        mov     dx,2eh
        mov     al,0f5h         ;device 8, CRF5
        out     dx,al
        mov     dx,2fh
        mov     al,00h              ;bit3 -> 0 = counter resolution in 1 second
        out     dx,al           ;bit3 -> 1 = counter resolution in 1 minute

        mov     dx,2eh
        mov     al,07h
        out     dx,al
        mov     dx,2fh
        mov     al,08h
        out     dx,al           ;device 8

        mov     dx,2eh
        mov     al,0f6h         ;device 8, CRF6
        out     dx,al
        mov     dx,2fh
        mov     al,1fh          ;The value is to control the watchdog
        out     dx,al           ;timer. 1fh=30 seconds (or minutes)
        ;------------------------------
        ; Exit extend function mode
        ;------------------------------
        mov     dx,2eh
        mov     al,0aah
        out     dx,al
.exit
end
```

Appendix D (System Assignments)

I/O Port Address Map

Address (HEX)	Device
000-01F	DMA controller 1
020-021	Interrupt controller 1
040-05F	Timer 1 & 2
060-06F	Keyboard controller
070-07F	Real Time Clock, Non_Maskable interrupt
080-09F	DMA page register
0A0-0BF	Interrupt controller 2
0C0-0DF	DMA controller 2
0F0	Clear math. Coprocessor busy signal
0F1	Reset math. Coprocessor
0F8-0FF	Math. Coprocessor
1F0-1F8	Fixed disk controller
200-207	Game port
278-27F	Parallel port #2 (LPT3)
2E8-2EF	Serial port #4 (COM 4)
2F8-2FF	Serial port #2 (COM 2)
300-31F	Prototype card / Streaming Tape Adapter
378-37F	Parallel port #1 (LPT2)
380-38F	SDLC, Bisynchronous 2
3A0-3AF	SDLC, Bisynchronous 1
3B0-3BF	Monochrome Display , Parallel port 0 (LPT1)
3C0-3CF	EGA card
3D0-3DF	CGA card
3E8-3EF	Serial port #3 (COM3)
3F0-3F7	Floppy Disk controller
3F8-3FF	Serial port #1 (COM1)
CF8-CFF	Chipset Address

DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8 bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Interrupt Assignments

Interrupt #	Interrupt Source
IRQ 0	Interval timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
IRQ 3	Serial port 2
IRQ 4	Serial port 1
IRQ 5	Parallel port 2
IRQ 6	Floppy disk controller
IRQ 7	Parallel port 1
IRQ 8	Real-time clock
IRQ 9	Cascade to controller 1 (IRQ 2)
IRQ 10	Available
IRQ 11	Available
IRQ 12	PS/2 Mouse
IRQ 13	Math coprocessor
IRQ 14	Hard disk controller (Primary)
IRQ 15	Hard disk controller (Secondary)

Memory Address Map

Address (HEX)	Device
0000000-009FFFF	System memory
00A0000-00BFFFF	Display memory
00C0000-00C7FFF	VGA BIOS ROM
00C8000-00EFFFF	I/O device BIOS ROM or RAM buffer
00F0000-00FFFFF	System BIOS ROM
0100000-BFFFFFF	System extension memory

System Timer Map

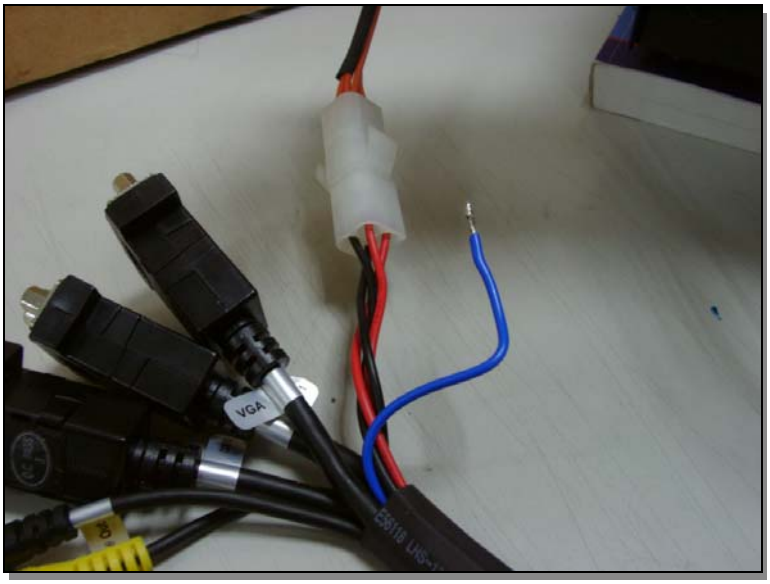
Timer #	Assignment
1	System timer interrupt
2	DRAM Refresh Request
3	Speaker tone generator

Appendix E

Hardware In-Lab Testing Installation Guide (FAQ)

Step 1

The blue wire is called “ACC Line” which is acting like an On/OFF switch for our zito unit. During the field installation that you would require this ACC line to be connected to the key’s ignition switch. The black and red power wires are connecting directly to 12/24V DC power supply within vehicle.

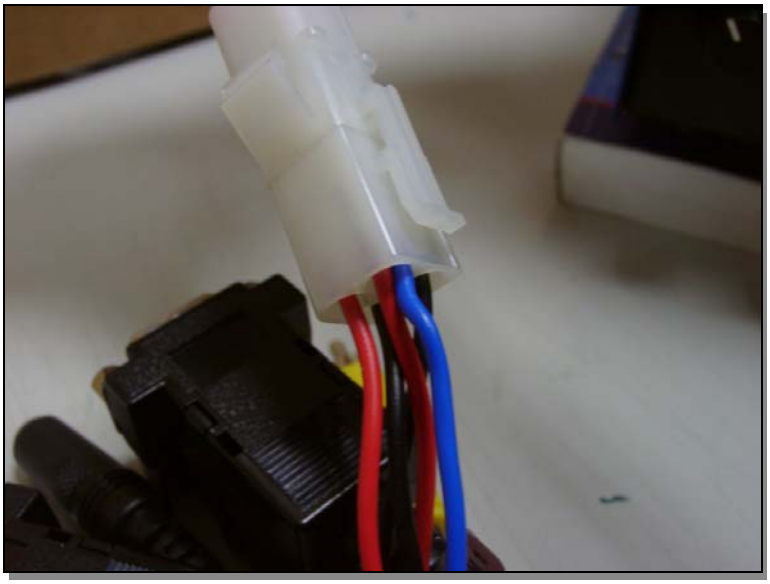


Step 2

Connecting the power cable (red and black) to the regulated DC power supply and setting the voltage at 11V or 22V accordingly.

Step 3

Insert the blue wire (ACC Line) within one of the red power wire together.



Step 4

Selecting the voltage up to 13V or 26V accordingly from setting in Step2, zito unit should be able to start powering up the system as well as loading up the operating system automatically.

NOTE:

When you have pull off the blue wire from connector. It will lead the system starting to power off as well as preparing operating system shut down automatically.

Auto Power ON (system ON/starting) = ACC attach to the +power cable.

Auto Power OFF (system shutdown) = ACC detach from the +power cable